Starline
A brand of legrand

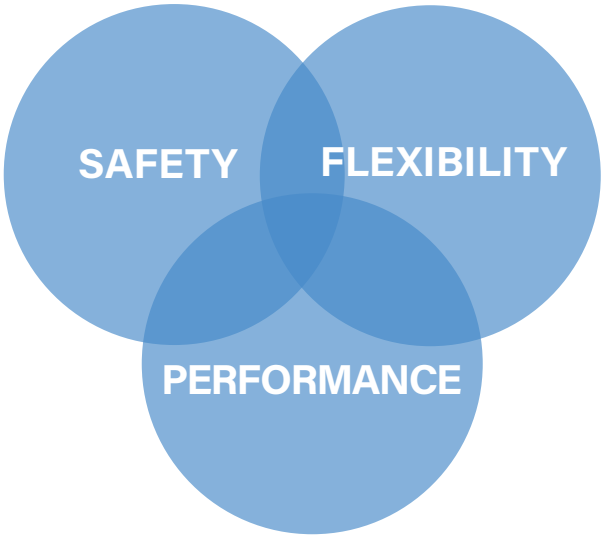
HIGH POWER BUSBAR PRODUCT SELECTION GUIDE

XCP

XCP IP65

BUSBAR TRUNKING

XCP IP65 is the Starline busbar trunking system ranging from 630 A to 6300 A with an IP65* degree of protection. It is the most suitable solution for the transport and distribution of energy in data center applications – Offering SAFETY, FLEXIBILITY and PERFORMANCE.



CERTIFICATION AND TESTS
The busbar trunkings have been tested and approved according to IEC 61439-6. Low voltage switchgear and controlgear assemblies. Part 6 refers to Busbar trunking systems (busways).

Typical applications

- Data Center.
- Industrial.
- Commercial and service sector buildings (banks, hospital, trade activities, business centers).

*The standard degree of protection is IP55. IP65 is available by request (only for transport of energy).

XCP-S AND XCP-HP

2 PRODUCT LINES

The range of XCP busbars consists of 2 different product lines:

- XCP-S
- XCP-HP

While the same basic characteristics, such as the range of rated current, the construction materials and the same amount of accessories available, XCP-S and XCP-HP have different properties that make them able to satisfy the demands of various markets.

XCP-S is designed to be safe, flexible and capable of delivering 630-6300 amps. It is optimized for most power distribution situations. For standard applications that do not require higher performance, the XCP-S system's reduced sections of internal conductors provide a compact and lightweight solution.

XCP-HP is characterized by higher performance on energy saving and higher short circuit withstand capability. It is designed to work at 55 °C ambient temperature. Due to these features, XCP-HP is the ideal solution for heavy duty applications, higher temperature environments and installations where high energy efficiency is required.

LIGHTER **SMALLER**

FOR STANDARD APPLICATIONS

HIGHER PERFORMANCES

FOR HEAVY DUTY APPLICATIONS

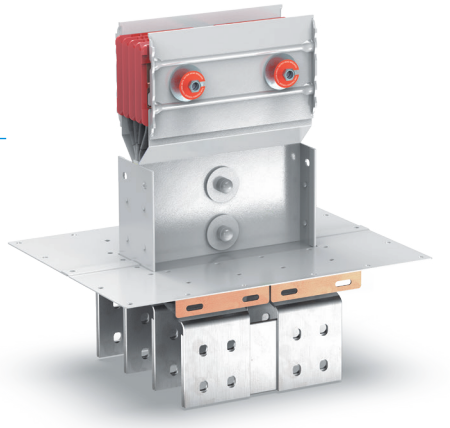
Number of Internal Bars of XCP-S and XCP-HP

RATED CURRENT	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A
XCP-S Aluminum	SINGLE BAR configuration						DOUBLE BAR configuration			*	
XCP-S Copper		SINGLE BAR configuration					DOUBLE BAR configuration				*

RATED CURRENT	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A	4000A	5000A	6300A
XCP-HP Aluminum	SINGLE BAR configuration						DOUBLE BAR configuration			*	
XCP-HP Copper		SINGLE BAR configuration						DOUBLE BAR configuration			*

*Triple bar

RANGE COMPONENTS



XCP includes all the necessary components to allow any path for the busbar run that the project requires.

The busbar system is composed of:

STRAIGHT SECTIONS: for transport and distribution (with tap off outlets) of high-power energy.

ADDITIONAL ACCESSORIES: to meet any installation requirement (fire barrier, phase inversion, etc.)

ELBOWS: meet any change of direction and plane with standard or special solutions.

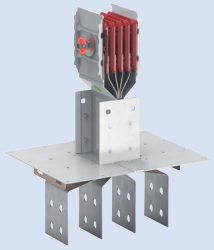
TAP-OFF BOXES: for connecting and energizing electric loads. Available in plug-in and bolt-on versions. See page 12 for more details.

CONNECTION INTERFACES: for connecting the busbar to the electric board or transformer.

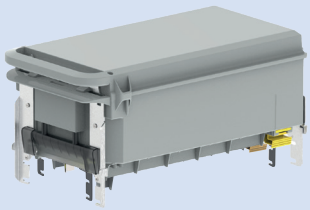
MOUNTING SUPPORTS: for mounting the busbar to the structure of the building, for horizontal and vertical installations and special applications (seismic areas).

HORIZONTAL ELBOW WITH DOUBLE BAR

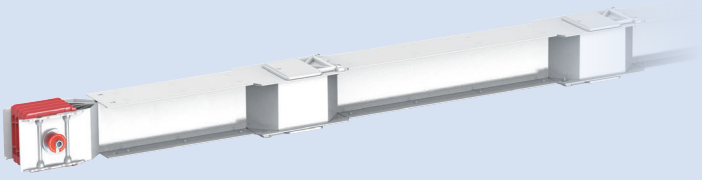
VERTICAL ELBOW WITH DOUBLE BAR



CONNECTION INTERFACES



PLASTIC TAP-OFF BOXES PLUG-IN TYPE



STRAIGHT ELEMENTS WITH TAP OFF OUTLETS FOR DISTRIBUTION

XCP is available in special versions upon request. Below are examples of special version codes:

REFERENCE	VERSION DESCRIPTION
64280102P	standard 4 conductors (3Ph + N + PE casing)
64280102P-R5	4 conductors RAL painted on request
64240102P	5 conductors (3Ph + N + FE + PE casing)
64250102P	double neutral
64280102P-3W	3 conductors (3Ph + PE casing)
64280102PF	Class F insulation (155 °C)
64280102P-RL	PEN conductor
64280102P-R3	with aluminum extra-ground (reinforced PE)
64280102P-R4	with copper extra-ground (reinforced PE)

CONDUCTOR VERSIONS:
3 conductors + PE: for applications where neutral distribution is not required

4 conductors + PE: with pariphase neutral

4 conductors + PE: with double neutral with respect to the phase section for applications with

high values of third order harmonics (THD%)

5 conductors + PE: 3 phases + Neutral pariphase + FE functional earth + PE

VERSIONS OF PE:
PE1 with casing used as earth conductor

PE2: with additional earth in alluminium plate

PE3: with additional earth in copper plate

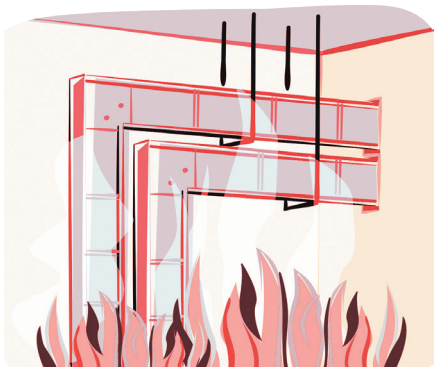
DESIGNED BETTER:
SAFETY, FLEXIBILTY AND PERFORMANCE

SAFETY

Tested and manufactured in accordance with IEC 61439-1 & 6, the XCP product line is designed to provide the highest safety levels from all aspects of design and installation. Features such as fire and seismic resistance, high-short circuit ratings, excellent ingress protection along with superior insulation technology help ensure that your critical operations team is always safe.

Fire Resistance

In installations where there is a high risk of fire, the XCP Busbar trunking system solution can provide technical advantages. Thanks to the low fire load of the busbar, the safety of the building is much improved. XCP has been fire resistance tested in accordance with the IEC 60331-1 standard.



Insulation Technology

To achieve superior quality and safety, XCP conductor bars are wrapped by two PET sheets, each of which is sufficient to ensure full required dielectric level. PET is a non-hygroscopic thermoplastic polymer resin and therefore preserves its performance whatever the level of humidity. For more information about the characteristics of this material, see page 96.

Maximum Strength

The XCP range has been designed and manufactured to meet the requirements of the most demanding environments. The busbar is self-supporting and the degree of impact resistance of the casing which houses this line is the maximum stated in IEC EN60068-2-62: IK10.

Electromagnetic Emission

The ferromagnetic structure of the casing and the compactness of the bars significantly reduce the electromagnetic field emitted. The magnetic induction measured at 1 metre from the XCP Busbar is much lower than 3μT which represents the “quality objective” of several countries.

IP55, IP65 and Sprinkler Proof

XCP has an IP65 degree of protection for the transport of energy and an IP55 rating as standard for the distribution of energy, making it ideal for most every application. It is also possible to accessorize XCP with a sprinkler kit that makes the busbar system resistant to the sprinkler test.

SPRINKLER KIT

Tests under sprinkler conditions are available.
For more information please contact Starline.

Resistance to Seismic Events

All busbar systems are laboratory tested and guarantee the resistance to seismic events, if installed in accordance with the recommended procedures. The XCP-S and XCP-HP ranges and the related tap-off boxes, have obtained the passing of seismic tests at a value of ZPA 1.5g * according to the regulations IEEE Std 693-2018. Considering that: ZPA 1.5g = 1.5 x 9.81 m/s^2 = 14.71 m/s^2. The maximum acceleration value obtained corresponds to extremely intense earthquakes.

FLEXIBILITY

With **XCP**, the design and installation of the power distribution system becomes simple and fast.

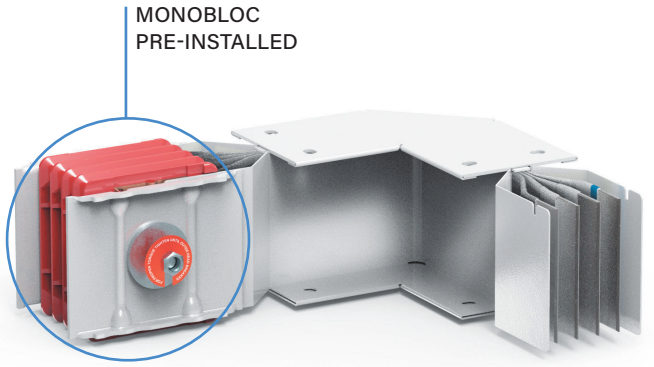
The product is Xtra-compact, efficient, and easy to install with features and accessories that make planning and designing your critical infrastructure project easy. With both a Standard (XCP-S) and High-Performance (XCP-HP) series, a current range of 630-6300A, copper or aluminum conductors, a full range of components and power connections, and tap-offs up to 1250A, the XCP product line can be configured for any project, including multi-floor distribution.

Outlet Windows

Outlet windows located on the straight sections provide high management flexibility throughout the project phases, as well as for future adaptability.

Pre-Installed Monobloc

In order to facilitate ease of installation and reduce installation time, the sections utilize a monobloc preinstalled at the factory and the connections between them are keyed, which ensures installation of the components in the correct position.



PSSL software

PSSL is a proprietary software to support the design of busbar trunking systems. It transforms a graphic project into a list of materials (including mandatory accessories) to get an offer identical to the final design. PSSL is fully compatible with the latest versions of Autocad and Revit (and previous versions of both programs).

With this software you can:

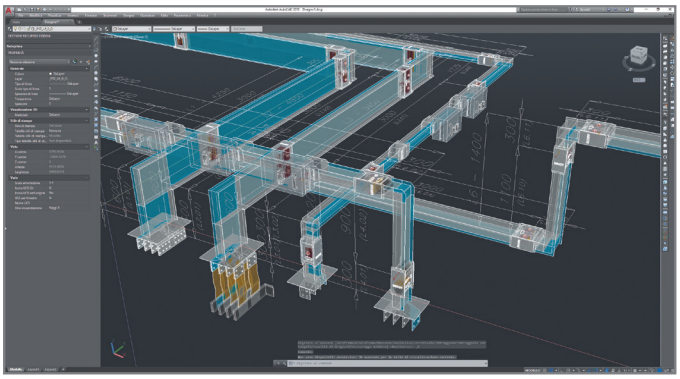
- draw the layout of the distribution system;
- automatically obtain the material list (including accessories) from the drawing;
- export the drawing to Autocad® and Revit®**

* For more information about the request and use of the Starline PSSL software, please contact Starline.

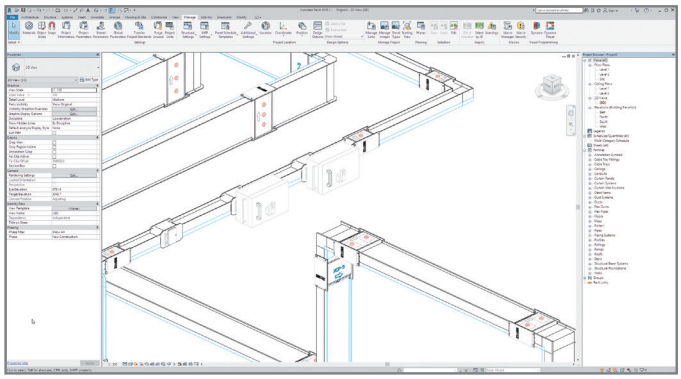
** Autodesk Revit is a building information modeling software for architects, landscape architects, structural engineers, MEP engineers, designers and contractors. The software allows users to design a building structure and its components in 3D, annotate the model with 2D drafting elements, and access building information from the building model's database.

*The standard degree of protection is IP55. IP65 is available by request (only for transport of energy).

With PSSL* you can have a detailed list of the item codes that are found in this catalogue. Furthermore, the possibility to export the drawing to Autocad or Revit**, allows you to enter the paths of the busbar directly into the design of the building and to follow any design changes quickly and professionally.

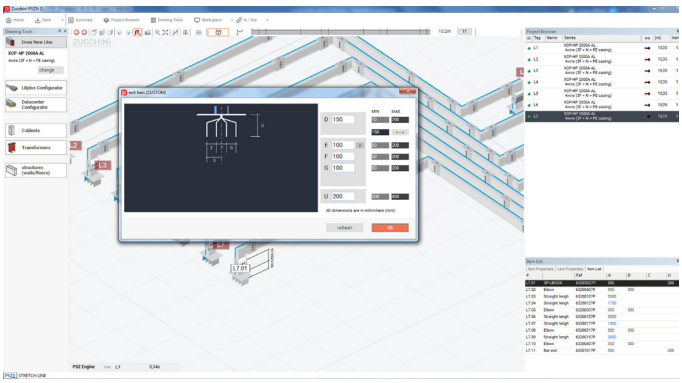


EXAMPLE OF A DRAWING EXPORT IN AUTOCAD

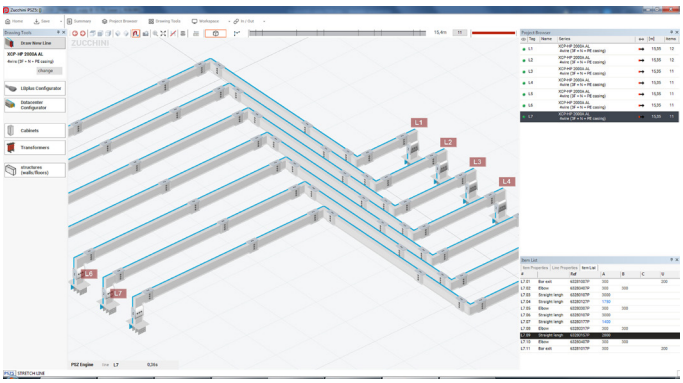


EXAMPLE OF THE DRAWING EXPORT IN REVIT

The new release of the program has been implemented with new features that make PSSL even more complete and performing.



SPECIAL UB MANAGEMENT FUNCTIONS



POSSIBILITY TO MANAGE SINGLE PIECES THROUGH A NEW ALGORITHM ABLE TO OPTIMIZE ROUTES

*g=9,81m/s2 (gravitational acceleration)

PERFORMANCE

The **XCP** product line provides exceptional performance for the most demanding critical power applications.

It provides high reliability in all environments and cost saving through its innovative design.

High Ambient Temperature

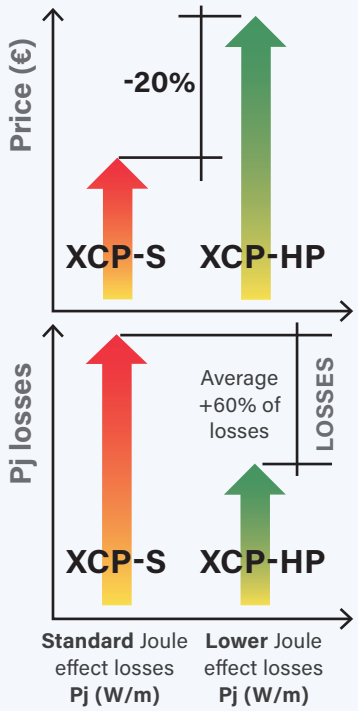
XCP's optimized design of the conductors and insulating material provides a benefit for high-temperature environments. The industry leading, high-ambient temperature operation of (55° C) means that XCP can be fully loaded with no derating necessary, even in the most extreme environments.

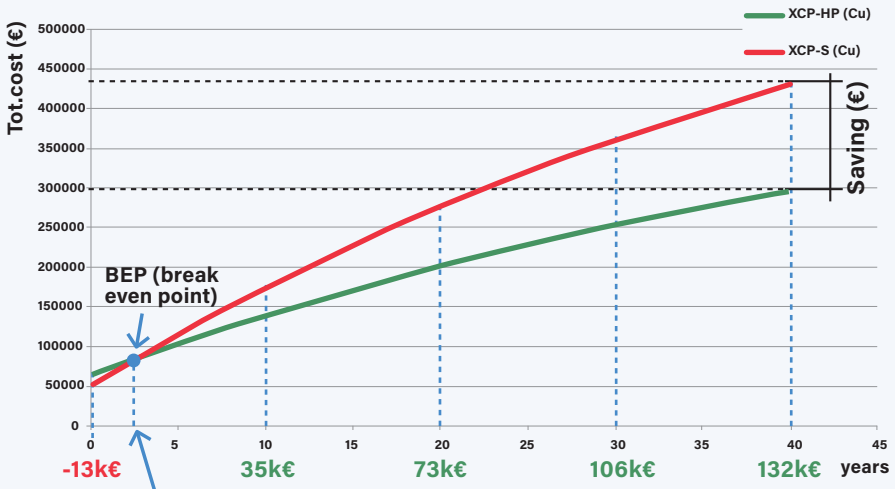
High Short-Circuit Ratings and Operational Voltage

Reliability and availability of your high power distribution system are safeguarded through industry leading short-circuit ratings and a high operational voltage (Ue=1000 V).

Low Electrical Losses

XCP ranges have low voltage drop due to the sandwich busbar design, reducing impedance, and making longer runs of busbar feasible. Significant energy savings can be further realized with the XCP-HP product line, with a typically very short pay-back period.





Range: In=1600A (Cu)
Ib=1000A
load factor = 63% (Ib/In)
Cost energy = 0,12€/kWh
Hours of work per year (h/year) = 8760
length of line: 100mt
lifespan busbar: 40 years

Maximum strength

The busbar is self-supporting and the degree of impact resistance of the casing which houses this line is the maximum stated in IEC EN60068-2-62: IK10.

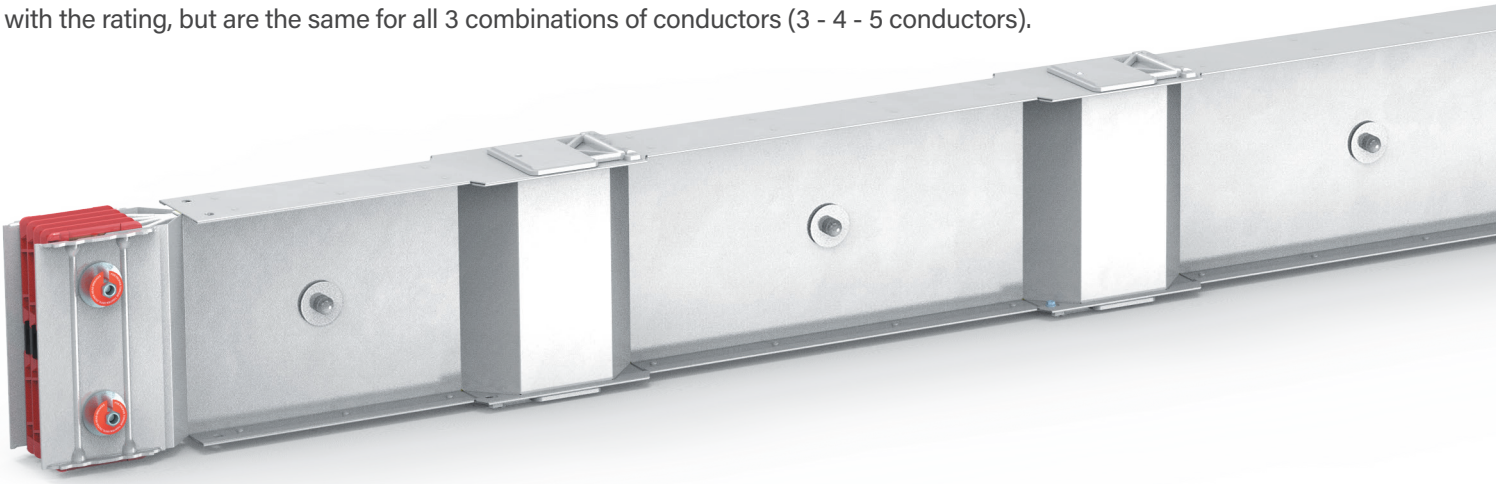
Electromagnetic emission

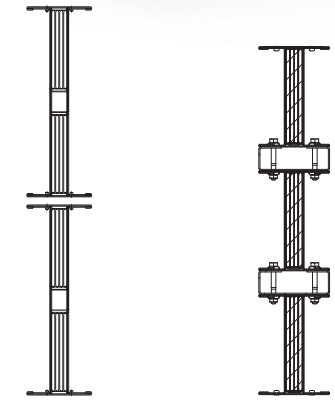
The ferromagnetic structure of the casing and the compactness of the bars significantly reduces the electromagnetic field emitted. The magnetic induction measured at 1 meter from the XCP Busbar is much lower than 3μT which represents the "quality objective" of several countries.

PRODUCT FEATURES

Xtra-compact design

XCP is available with aluminium or copper conductors and it is characterised by a smart and ultra-compact design. The external dimensions don't change in base of number of conductors: length and height change with the rating, but are the same for all 3 combinations of conductors (3 - 4 - 5 conductors).



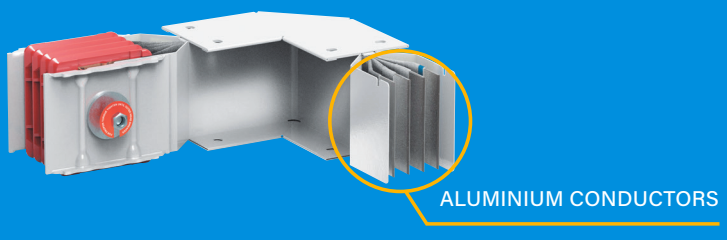


STANDARD BUSBAR

XCP

Often the transport and distribution of high power (5000A Al /6300A Cu rated current) consists of two parallel independent busbars. **With XCP, multi-bar design is always supplied in a single structure** making it simpler to install compared to independent run designs.

XCP is available in aluminium versions (630 - 5000 A) or with copper conductors (800 - 6300 A)



PRODUCT FEATURES

End feed unit for rising mains

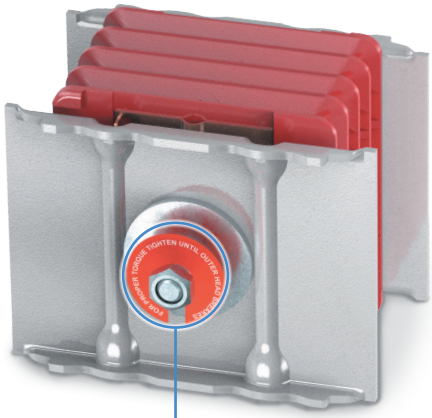
Feed units are used at the start of the riser mains lines, when the busbar must be placed to the wall and powered using cables. These feed units allow you to install the product at a minimum distance of 40 mm from the wall.

Patented monoblock

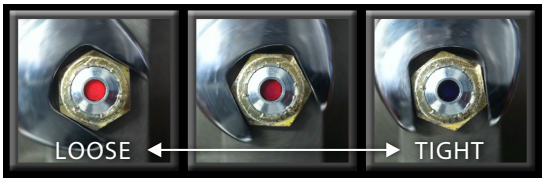
Starline's XCP line is equipped with a monobloc covered by a Legrand patent. This new monobloc ensures a better connection of the junction with less contact resistance. The insulation parts of monobloc are made by thermo-set insulation material Class F (155°C) and for each conductor there are two plates that assure the continuity between each conductor. A system of Belleville washers assure the correct pressure also during thermal expansion of the conductors. A double head nut breaks when reached the nominal Torque (85 N▪m). In the double/triple configurations, the monobloc assure the current balancing on the same conductors.

SmartBolts®

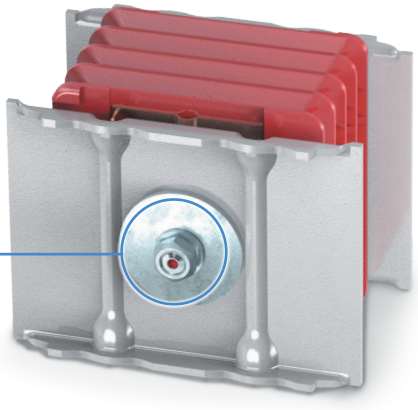
Smart bolts are available on request. These bolts are equipped with a visual indication system that turns from red to black when you reach the right tightening torque (85 N▪m). They are also useful after installation and during maintenance operations because they allow you to see at a glance if a bolt has become loose or lost the right torque by turning back to red.



DOUBLE HEAD NUT THAT BREAK AT NOMINAL TORQUE (85 N▪M) DURING 1ST INSTALLATION



DTI (Direct Tension Indicating) SmartBolts are specialty fasteners with a built-in indicator that shows the tension that is developed as the bolt is installed.



SMART BOLT®

FIBERGLASS AND METAL TAP-OFF BOX

XCP distribution systems are equipped with outlets suitable for the **range of dedicated tap-off boxes.**

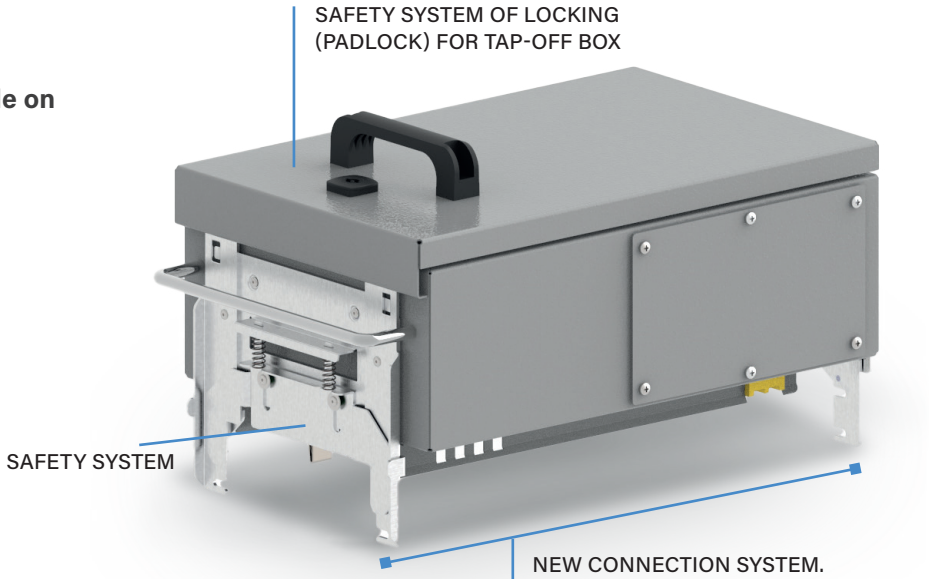
The tap-off boxes are available in 2 different construction materials:

- 25% fiberglass up to 250 A
- sheet metal case up to 1250 A

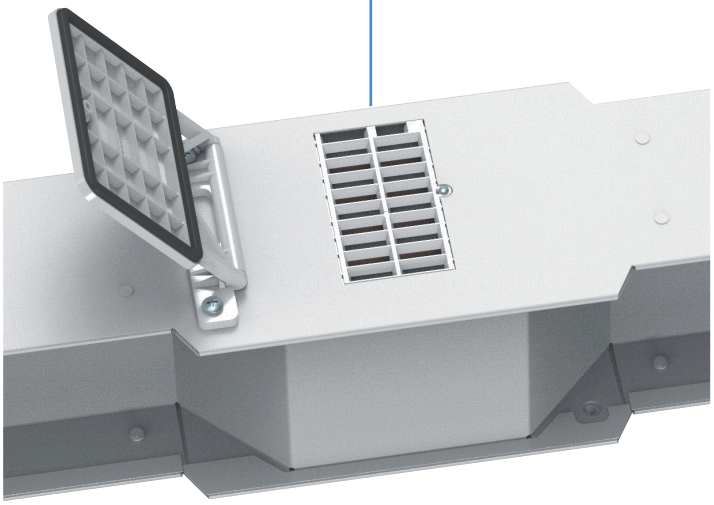
They are **universal** and therefore **usable on both XCP-S and XCP-HP**.

The tap-off boxes guarantee:

Safety, optimized dimensions, reduced maintenance costs and are ready for MCB/MCCB circuit breakers.



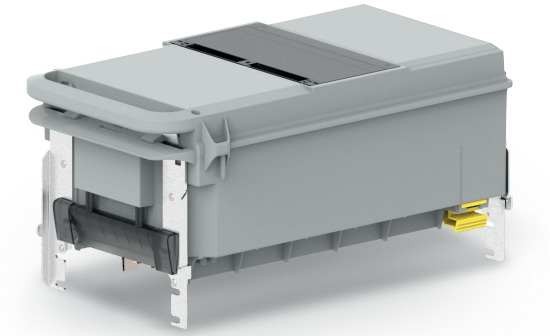
The design of the outlets allows the installation of fiberglass plastic tap-off boxes, in addition to the metal versions range. **The degree of protection of the outlets and the system is IP 55.**



Tap-off boxes for XCP are available in 2 different materials: fiberglass and metal sheet, both characterised by a simple installation and fast connection thanks to the new layout of the hooks that offer safety and assembly speed. Tap-off boxes can be installed and removed when the busbar is energised.

Fiberglass version:

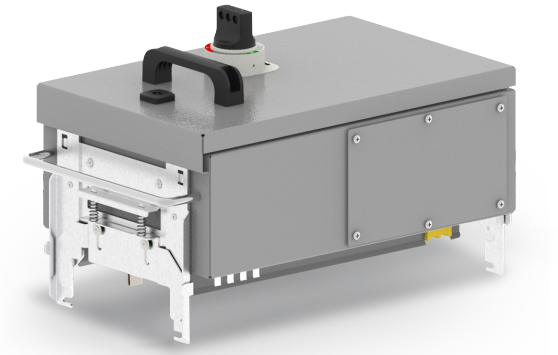
- Range from 63 A to 250 A
- Optimized installation of Starline circuit breakers (MCB/MCCB)
- Optimized for IEC 60309 outlets
- Ideal for data center applications
- Empty version or with fuse carriers available
- Total insulation (no metallic parts from inside to outside)
- Able to be installed and uninstalled under live voltage



FIBERGLASS VERSION FROM 32 A TO 250 A

Metal version:

- Range from 63 A to 630 A
- Optimized for installation with circuit breakers from various manufacturers
- Optimized for IEC 60309 outlets
- Ideal for data center applications
- Empty version or with fuse carriers available
- Equipped with:
  - anti movement security system
  - anti accidental closing and opening of the box
  - locked screws that will not loosen
  - blocked opened cover
  - safer vertical installation (the cover remains in an open position)
- Able to be installed and uninstalled under live voltage

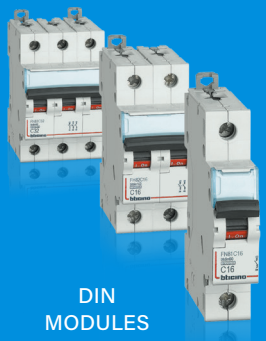


METAL VERSION FROM 63 A TO 630 A

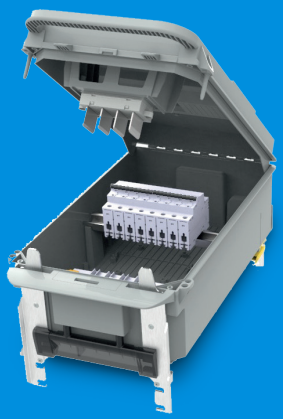
How to accessorise tap-off boxes

Tap-off boxes are ready for equipment with Legrand circuit breakers and outlets.

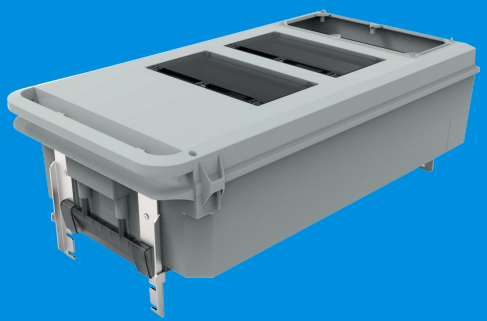
DPX3



DIN MODULES



P17 SOCKETS



*Accessories not supplied. To be purchased separately

TECHNICAL GUIDE

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14 Selection of the busbar on the base of rated transformers data

14 Temperature impact on the rating of the busbar trunking system

15 Joule Effect Losses in Busbar

16 Selection of the Busbar Trunking System Based on Voltage Drop

17 Short Circuit Withstand

19 Harmonics

20 IP and IK Degree of Protections

Selection of the busbar on the base of rated transformer data

Technical Information

When planning the development of a power supply system, it's necessary to consider the technical specifications and standards of single items, as well as the technology and economy correlations.

Each piece of electrical equipment (transformers, panel boards, busbars, protection devices) must be selected after correct dimensioning in order to represent a coherent selection inside the whole system, not just individually. All the component must be correctly dimensioned to support loads peak in the event of a fault or during rated current operations.

RATED CURRENTS AND SHORT-CIRCUIT CURRENTS OF STANDARD TRANSFORMERS						
	Rated voltage Un					
	400V, 50Hz			690V, 50Hz		
	Rated short circuit voltage Uk			Rated short circuit voltage Uk		
		4%	6%		4%	6%
Rated power [kVA]	Rated current In [A]	Short circuit current Ik [kA]		Rated current In [A]	Short circuit current Ik [kA]	
400	577	14,4	9,6	335	8,4	5,6
500	722	18,0	12,0	418	10,5	7,0
630	909	22,7	15,2	527	13,2	8,8
800	1.155	28,9	19,2	669	16,7	11,2
1000	1.443	36,1	24,1	837	20,9	13,9
1250	1.804	45,1	30,1	1046	26,1	17,4
1600	2.309	57,7	38,5	1339	33,5	22,3
2000	2.887	72,2	48,1	1673	41,8	27,9
2500	3.608	90,2	60,1	2092	52,3	34,9
3150	4.547	113,7	75,8	2636	65,9	43,9
4000	5.774	144,3	96,2	3347	83,7	55,8

$$I_n = \frac{P}{\sqrt{3} \cdot U_n} \leftrightarrow P = I_n \cdot \sqrt{3} \cdot U_n \qquad I_k = \frac{I_n}{U_k} \leftrightarrow I_n \cdot I_k = I_k \cdot U_n$$

Crossing the busbar datasheet with previous chart, the proper busbar trunking systems can be selected. The first selection parameter for appropriate busbar is linked to transformer's rated current In (lower than rated current of selected busbar). The second parameter to be evaluated is short-circuit rating of busbar trunking system, which usually must be higher than transformer's peak short-circuit current Ik.

NOTE: previous consideration applies if just a single transformer is used for LV supply. For system with ring, meshed network or with transformers connected in parallel, the short-circuit current Ik increases (i.e. Ik double if two transformers in parallel).

Selection example:

As practical example, given a transformer

P = 1000 kVA
Uk = 6%
Un = 400 V

from previous calculation and table,

$$I_n = \frac{P}{\sqrt{3} \cdot U_n} \rightarrow I_n = \frac{1000000}{\sqrt{3} \cdot 400} = 1443 \text{ A};$$

$$I_k = \frac{I_n}{U_k} \rightarrow I_k = \frac{1443}{6\% \cdot 1000} = 24{,}05 \text{ kA}$$

from here:
possible choice of XCP-S (50 Hz, Al, 4C) having In=1600A and short-circuit rating Icw = 42 kA or XCP-HP (50 Hz, Al, 4C) having In=1600A and short-circuit rating Icw = 70 kA

Temperature impact on the rating of the busbar trunking system

Technical Information

The ambient temperature where the busbar trunking system is installed impacts rating. During the design stages, it will be necessary to multiply the rating value at the reference temperature by a correction coefficient referred to the final operating temperature.

All Starline products have been sized and tested for an average ambient temperature of 40 °C. For installation in environments with average daily temperatures lower than 40 °C, the rated current of the busbar must be multiplied by a k1 factor, which is higher than the unit for temperatures lower than 40 °C, and lower than the unit if the ambient temperature is higher than 40 °C:

$$I_z = I_z0 \cdot Kt$$

Where:

- I_z0 is the current that the busbar trunking system can carry for an indefinite time at its reference temperature (40 °C)
- **Kt** is the correction coefficient for ambient temperature values other than the reference temperature, as shown in the following table

KT CORRECTION COEFFICIENT FOR AMBIENT TEMPERATURE													
XCP-S													
Ambient temperature [°C]	10	15	20	25	30	35	40	45	50	55	60	65	70
kt thermal correction factor [.]	1.15	1.12	1.09	1.06	1.03	1	0.97	0.93	0.90	0.87	0.83	0.79	0.76
XCP-HP (Al)													
Ambient temperature [°C]	10	15	20	25	30	35	40	45	50	55	60	65	70
kt thermal correction factor [.]	1.28	1.25	1.21	1.18	1.15	1.11	1.07	1.04	1	0.96	0.92	0.88	0.84
XCP-HP (Cu)													
Ambient temperature [°C]	10	15	20	25	30	35	40	45	50	55	60	65	70
kt thermal correction factor [.]	1.33	1.30	1.26	1.23	1.19	1.16	1.12	1.08	1.04	1	0.96	0.92	0.87

To select other system trunking paths (not just the main units at the transformer output), you need to consider and calculate the parameters on the following pages.

Joule effect losses in busbars

Technical Information

Losses due to the Joule effect are essentially caused by the electrical resistance of the busbar. Lost energy is transformed into heat and contributes to the heating of the conduit of the environment.
The calculation of power loss is a useful data for correct sizing of the building air conditioning system.

Three-phase regime losses are:

$$Pj = \frac{3 \cdot Rt \cdot Ib^2 \cdot L}{1000}$$

In one-phase regime:

$$Pj = \frac{2 \cdot Rt \cdot Ib^2 \cdot L}{1000}$$

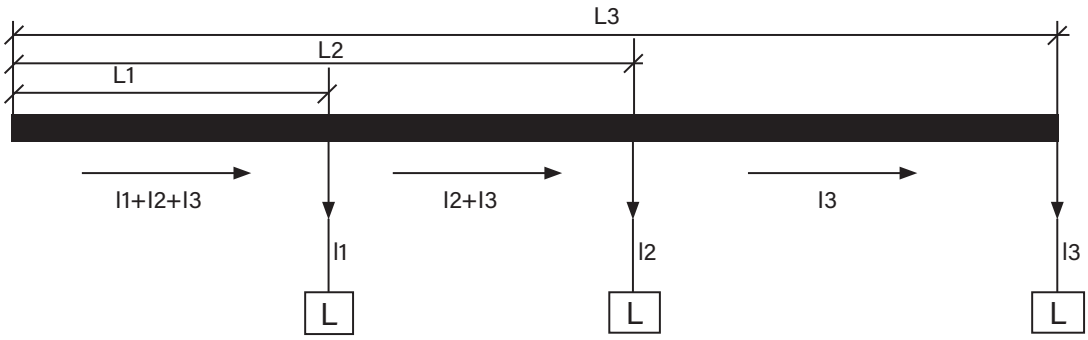
Where:

I_b = Utilisation current (A)
R_t = Phase resistance for unit of length of the busbar trunking system, measured at thermal regime (mΩ/m)
L = Busbar length (m)

For accurate calculation, losses must be assessed trunk by trunk taking into account the transiting currents; for example, in the case of the distribution of the loads represented in the figure one has:

	Length	Transiting current	Losses
1st trunk	L1	I1+I2+I3	$P1 = 3R_tL1\ (I1+I2+I3)^2$
2nd trunk	L2-L1	I2+I3	$P2 = 3R_t\ (L2-L1)\ (I2+I3)^2$
3rd trunk	L3-L2	I3	$P3 = 3R_t\ (L3-L2)\ (I3)^2$

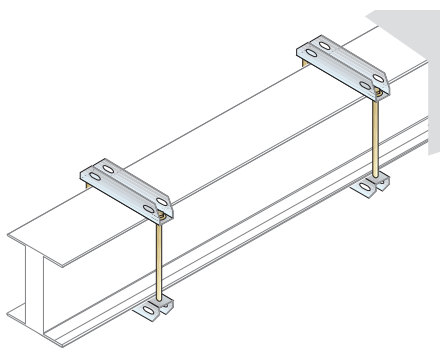
Total losses in the busbar trunking system Pt = P1+P2+P3



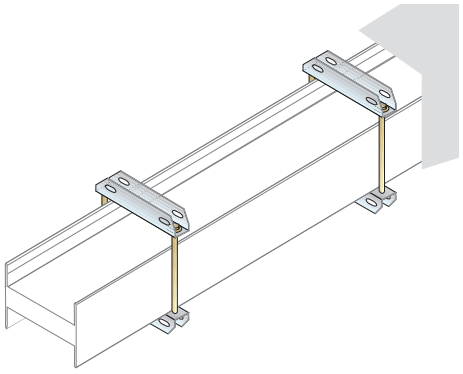
Losses based on the installation method

Thermal dispersion, rating and IP protection degree are independent from the type of installation (edgewise, flat, vertical)

This means that it is possible to install the XCP busbar trunking system as preferred, without having to consider a possible system downgrading.



Edgewise element



Flat element

Selection of the busbar trunking system based on voltage drop

Technical Information

If the line is particularly long (> 100 m), it will be necessary to check the value of the voltage drop. For systems with power factor (cosφm) not lower than 0.8 the voltage loss can be calculated using the following formulas:

THREE PHASE SYSTEM

$$\Delta v = \frac{b \cdot \sqrt{3} \cdot I_b \cdot L \cdot (R_t \cdot \cos\varphi m + x \cdot \sin\varphi m)}{1000}$$

ONE-PHASE SYSTEMS

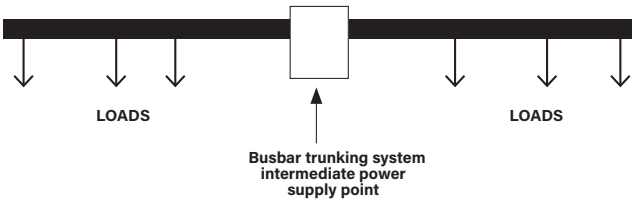
$$\Delta v = \frac{b \cdot 2 \cdot I_b \cdot L \cdot (R_t \cdot \cos\varphi m + x \cdot \sin\varphi m)}{1000}$$

The percentage voltage drop can be obtained from:

$$\Delta v\% = \frac{\Delta v}{Vr} \cdot 100$$

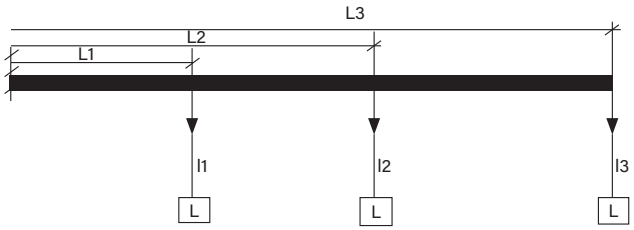
Where Vr is the system rated voltage

In order to limit the voltage drop in case of very long busbar trunking systems, it is possible to allow for a power supply at an intermediate position, rather than at the terminal point.



If the three-phase system and the power factor are not lower than cosφ = 0.7, the voltage loss may be calculated using the voltage drop coefficient shown in Table 1.

$$\Delta v\% = 2b \cdot \frac{k \cdot Ib \cdot L}{Vn} \cdot 100$$



The current distribution factor "b" depends on how the circuit is fed and on the distribution of the electric loads along the busbar:

Table 1 - The distribution factor of the current "b"

b = 1	Supplies at one end and load at the end of the line
b = 1/2	Supplies at one end and with load evenly distributed
b = 1/4	Supplies at both ends and with load evenly distributed
b = 1/4	Central supply with loads at both ends
b = 1/8	Central supply with load distributed evenly

Calculation of the voltage drop with loads not evenly distributed

In case the load cannot be considered evenly distributed, the voltage drop may be determined more accurately using the relationships shown below.

For the distribution of three-phase loads, the voltage drop can be calculated using the following formula, on the assumption (generally verified) that the section of the busbar trunking system is consistent:

$$\Delta v = \sqrt{3}\,[Rt\,(I1L1\cos\varphi 1 + I2L2\cos\varphi 2 + I3L3\cos\varphi 3) + x\,(I1L1\sin\varphi 1 + I2L2\sin\varphi 2 + I3L3\sin\varphi 3)]$$

In general terms this becomes:

$$\Delta v = \frac{\sqrt{3}\,(R_t \cdot \sum Ii \cdot Li \cdot \cos\varphi mi + x \cdot \sum Ii \cdot Li \cdot \sin\varphi mi)}{1.000}$$

Example: XCP 2000A Al for riser mains feed

I_b	=	1600A operating current
b	=	1/2 load evenly distributed
k	=	27.3 see technical data table (XCP 2000 A Al cosφ = 0.85)
cosφ	=	0.85
L	=	100 m line length
Vn	=	400 V operating voltage

$$\Delta v\% = \frac{27.3 \cdot 10^{-6} \cdot 1600 \cdot 100}{400} \cdot 100 = 1.09\%$$

Legend:

I_b	=	the current that supplies the busbar [A]
Vn	=	the voltage power supply of the busbar [V]
L	=	the length of the busbar [m]
Δv%	=	the voltage drop percentage
b	=	the distribution factor of the current
k	=	corresponding voltage drop factor a cosφ [V/m/A] (see technical data table)
cosφ m	=	Average power factor of the loads
x	=	phase reactance by unit of length of the busbar (mΩ/m)
Rt	=	phase resistance by unit of length of the busbar (mΩ/m)
cosφ mi	=	i-th load average power factor
Ii	=	i-th load current (A)
Li	=	distance of the i-th load from the origin of the busbar trunking system

Short circuit withstand

Technical Information

The CEI 64-8 standard indicates that, for the protection of the circuits of the system, it is necessary to allow for devices aimed at interrupting short circuit currents before these become dangerous due to the thermal and mechanical effects generated in the conductors and the connections.
In order to size the electric system and the protection devices correctly, it is necessary to know the value of the estimated short circuit current at the point where this is to be created.
This value enables in fact to correctly select protection devices based on their own tripping and closing powers, and to check the resistance to electro-dynamic stress of the busbar supports installed in control panels, or/and of the busbar trunking systems.

Characterisation of short circuit current

The estimated short circuit current at a point of the user system is the current that would occur if in the considered point a connection of negligible resistance was created between conductors under voltage. The magnitude of this current is an estimated value that represents the worst possible condition (null fault impedance, tripping time long enough to enable the current to reach the maximum theoretical values).
In reality, the short circuit always occurs with significantly lower effective current values.

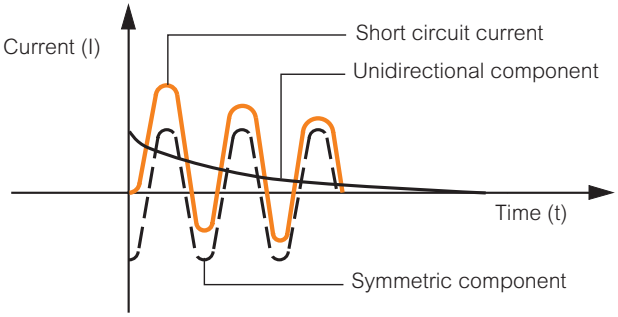
The intensity of the estimated short circuit current essentially depends on the following factors:
- Power of the cabin Transformer, meaning that the higher is the power, the higher is the current;
- length of the line upstream

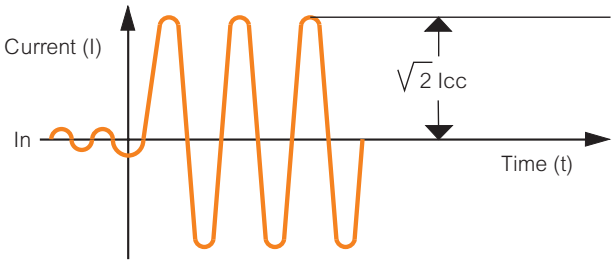
In three-phase circuits with Neutral it is possible to have three different types of short circuit:
- phase-phase;
- phase-Neutral;
- balanced three-phase (most demanding condition)

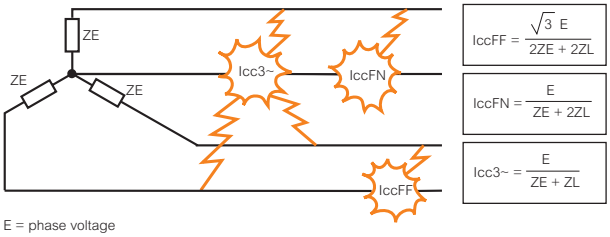
The formula for the calculation of the symmetric component is:

$$\overline{Icc} = \frac{\overline{E}}{\overline{ZE}+\overline{ZL}}$$

Where:
- **E** is the phase voltage;
- **ZE** is the secondary equivalent impedance of the TRANSFORMER measured between the phase and the Neutral;
- **ZL** is the impedance of the phase conductor only





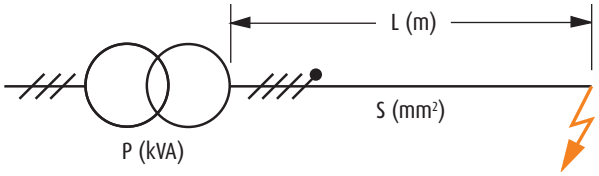


E = phase voltage

Short circuit withstand (continued)

Analytical determination of short circuit currents

In order to calculate the value of the estimated short circuit current at any point of the circuit, it is sufficient to apply the formulas shown below, knowing the impedance calculated at the origin of the system up to the point being assessed. In the formulas shown below, the value of the short circuit power is considered infinite and the short circuit impedance is equal to 0. This makes it possible to define short circuit current values higher than the actual ones, but generally acceptable.



Line resistance $RL = r \cdot L$	**RL** = resistance of the line upstream (m) **r** = specific line resistance (m/m) **L** = upstream line length (m)
Line reactance $XL = x \cdot L$	**XL** = upstream line reactance (m) **x** = specific line reactance (m/m)
TRANSFORMER resistance $RE = \frac{1000\ Pcu}{3In^2}$	**RE** = transformer secondary equivalent resistance (m) **Pcu** = transformer COPPER losses (W) **In** = transformer Rated current (A)
TRANSFORMER impedance $ZE = \frac{Vcc\%\ V^2c}{100\ P}$	**ZE** = transformer secondary equivalent impedance (m) **Vc** = phase voltage (V) **Vcc%** = percentage short circuit voltage **P** = transformer power (kVA)
TRANSFORMER reactance $XE = \sqrt{ZE^2 - RE^2}$	**XE** = transformer secondary equivalent reactance (m)
Short circuit impedance $Zcc = \sqrt{(RL + RE)^2 + (XL + XE)^2}$	**Zcc** = total short circuit impedance (m)
Estimated short circuit current $Icc = \frac{Vcc}{\sqrt{3} \cdot Zcc}$	**Icc** = symmetric component of the short circuit current (kA)

Harmonics

Technical Information

In a distribution system, currents and voltages should have a perfectly sinusoidal shape. However, in practice the equipment contains electric devices such as changeover devices or dimmers that make the load not linear.

The currents absorbed, although at regular intervals and with frequencies equal to that of the rated voltage, sometime have a non-sinusoidal wave form, which has the following negative effects:

- worsening of the power factor;
- heating of the Neutral;
- additional losses in electric machinery (transformers and motors);
- instable operation of the protection elements (thermal magnetic and earth leakage circuit breakers)

In industrial plants these conditions have been occurring for a long time, However, they are now occurring more and more in service sector distribution systems, where, from backbone distribution (which uses three-phase lines), one-phase loads are often distributed, which contributes to increasing the unbalance of the electric system.

Each type of non-sinusoidal periodical wave may be split into a more or less large number of sinusoids (called harmonic components), which frequency a whole multiple of the frequency of the wave shape observed.

A deformed current at a frequency of 50 Hz, like for example that represented by the red line on the figure, consists of many sinusoidal currents with frequency of 50 Hz (fundamental), 100 Hz (second harmonic components), 150 Hz (third harmonics), and so on.

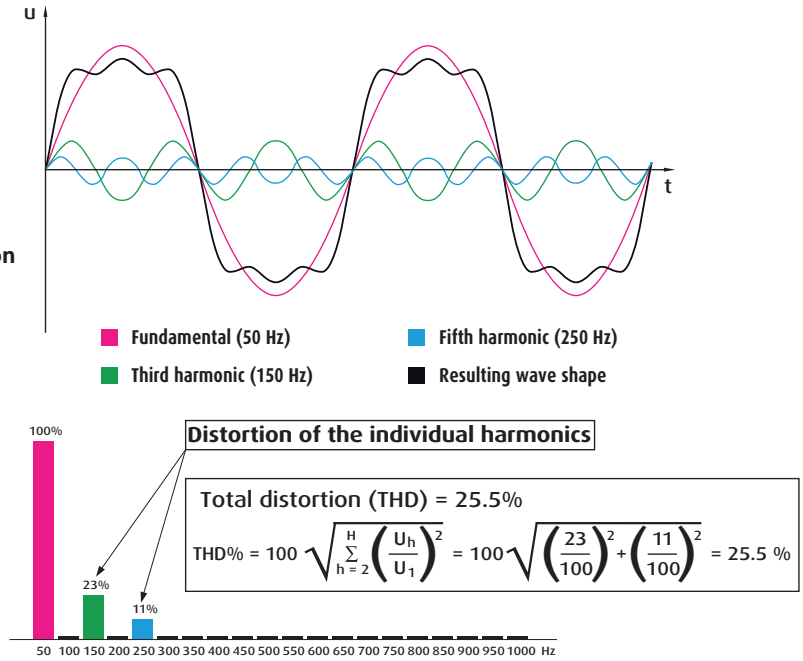
The presence of current harmonics represents an important problem, causing overload conditions both on phase conductors, and on any Neutral conductor, and results in the reduction of the conductor permitted load.

Choice of the rating when in the presence of harmonics

When in the presence of harmonics, and when using the chosen Int rated current, the XCP busbar to be used shall have the rating specified in the table by side.

Rated current	630 A	800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A
XCP busbar to be used:										
THD ≤ 15%	630 A	800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A
15% < THD ≤ 33%	800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	—
THD > 33%	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	—	—

Measurement of harmonic distortion carried out with a network analyser



A solution to guarantee protection against overloads due to the presence of harmonics, is the choice of XCP busbars equipped with double neutral

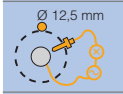
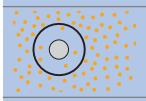
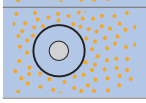
Degrees of protection

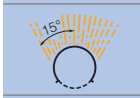
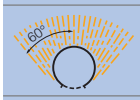
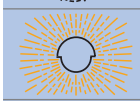
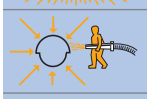
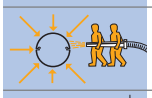
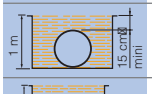
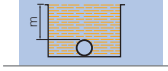
IP: degree of protection provided against intrusion

IP

The protection enclosures are classified (IEC 60529) in according to their degree of protection against weather conditions and external agents. The degree of protection is indicated by two digits (protection against solid bodies and liquids) following the symbol IP.

To increase the ease of choice of the most suitable busbar, in according to installation requirements, below there is a summary of their performance, based on the IP degree of protection according to the IEC 60529 standard.

1st digit IP		
Protection against penetration of solid bodies		
	0	No protection
	1	Protection against solid bodies larger than 50 mm (e.g.: accidental contact)
	2	Protection against solid bodies larger than 12 mm (e.g.: finger)
	3	Protection against solid bodies larger than 2.5 mm
	4	Protection against solid bodies than 1 mm
	5	Protection against dust
	6	Complete protection against dust

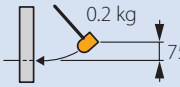
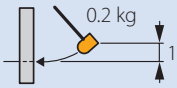
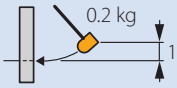
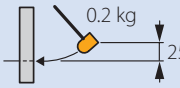
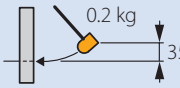
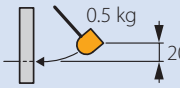
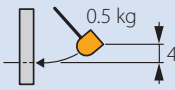
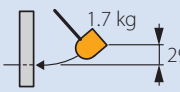
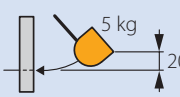
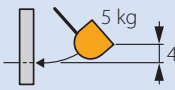
2nd digit IP		
Protection against penetration of liquids		
	0	No protection
	1	Protection against vertically-falling drops of water (condensation)
	2	Protection against drops of water falling up to 15° from the vertical
	3	Protection against drops of water up to 60° from the vertical
	4	Protection against sprays of water from all directions
	5	Protection against jets of water from all directions
	6	Protection against jets of water (similar force to heavy seas)
	7	Protection against the effects of immersion
	8	Protection against effects of immersion under pressure

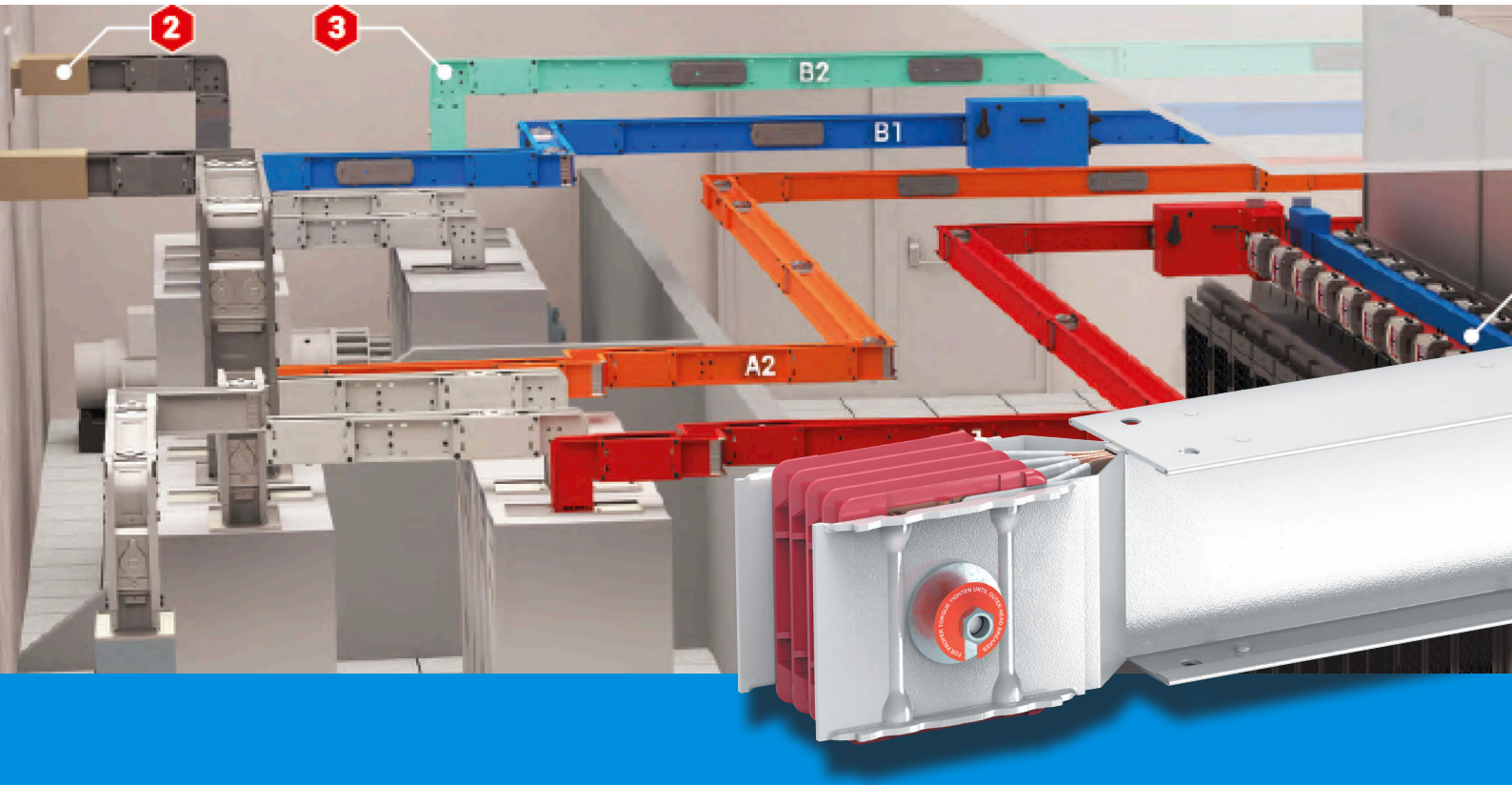
Degrees of protection

IK: degree of protection of equipment to mechanical impact

IK

Standard IEC 62262 defines an IK code that characterises the aptitude of equipment to resist mechanical impacts on all sides.

IK	Test	Impact energy (In joules)
IK 00		0
IK 01		0.15
IK 02		0.2
IK 03		0.35
IK 04		0.5
IK 05		0.7
IK 06		1
IK 07		2
IK 08		5
IK 09		10
IK 10		20



XCP-S

Busbar from 630 to 6300 A

The light and compact power solution for standard applications.

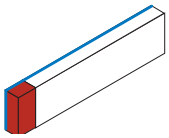
XCP-S is an extra compact and light busbar trunking system. It is the range used for transport and distribution of High Power, and is also highly valued in rising mains.

STRAIGHT ELEMENTS

Technical Information

64280100P

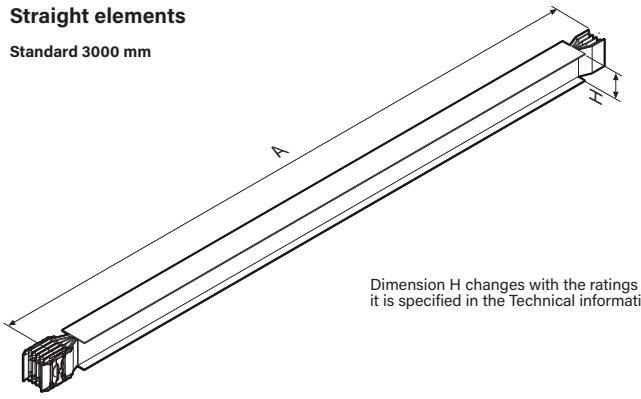
XCP-S Line:
Reference standard: IEC 61439-6. Reference temperature: 35 °C.
Protection degree: IP55. Thickness of metal sheet: 1.5 mm.
N° of conductors: 3, 4 or 5. Painted: RAL 7035. Halogen Free.
The insulation between bars is ensured by a double sheet made with polyester film class B(130°C), class F (155°C) thermal resistance available on request. All plastic components have a V1 self-extinguishing degree (as per UL94); they are fire retardant and comply with the glow-wire test according to standards.

Item		Straight elements for transport	
Al	Cu	In (A)	A (mm)
64280100P	-	630	3000 
64280101P	67280100P	800	
64280102P	67280101P	1000	
64280104P	67280103P	1250	
64280106P	67280105P	1600	
64280107P	67280106P	2000	
64390104P	67390104P	2500	
64390106P	67390105P	3200	
64390107P	67390106P	4000	
64390108P	67390108P	5000	
-	67390109P	6300	
64280110P	-	630	500-1000
64280111P	67280110P	800	
64280112P	67280111P	1000	
64280114P	67280113P	1250	
64280116P	67280115P	1600	
64280117P	67280116P	2000	
64390114P	67390114P	2500	
64390116P	67390115P	3200	
64390117P	67390116P	4000	
64390118P	67390118P	5000	
-	67390119P	6300	
64280170P	-	630	1001-1500
64280171P	67280170P	800	
64280172P	67280171P	1000	
64280174P	67280173P	1250	
64280176P	67280175P	1600	
64280177P	67280176P	2000	
64390174P	67390174P	2500	
64390176P	67390175P	3200	
64390177P	67390176P	4000	
64390178P	67390178P	5000	
-	67390179P	6300	
64280120P	-	630	1501-2000
64280121P	67280120P	800	
64280122P	67280121P	1000	
64280124P	67280123P	1250	
64280126P	67280125P	1600	
64280127P	67280126P	2000	
64390124P	67390124P	2500	
64390126P	67390125P	3200	
64390127P	67390126P	4000	
64390128P	67390128P	5000	
-	67390129P	6300	
64280180P	-	630	2001-2500
64280181P	67280180P	800	
64280182P	67280181P	1000	
64280184P	67280183P	1250	
64280186P	67280185P	1600	
64280187P	67280186P	2000	
64390184P	67390184P	2500	
64390186P	67390185P	3200	
64390187P	67390186P	4000	
64390188P	67390188P	5000	
-	67390189P	6300	

Dimensions

Straight elements

Standard 3000 mm

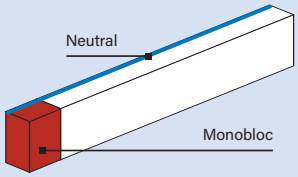


Dimension H changes with the ratings and it is specified in the Technical information

MIN AND MAX DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium (Al)	630A – 5000A
Copper (Cu)	800A – 6300A
(L) min/MAX [mm]	500/3000

Straight elements are available on request only for transport of energy:
Al: 5000A
Cu: 6300A

Notes
The product versions in the whole catalogue will be simplified as shown opposite, highlighting the part with the monobloc installed in red and the neutral side in blue.
In the whole catalogue, the measurements shown refer to the element centre distance



The range is also available on request in different versions:
(5 Conductors with dedicated PE conductor, double neutral and more others...)

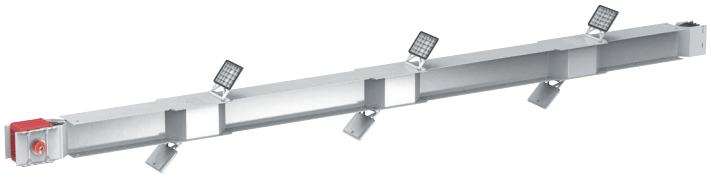
Item		Straight elements for transport	
Al	Cu	In (A)	A (mm)
64280150P	-	630	2501-2999
64280151P	67280150P	800	
64280152P	67280151P	1000	
64280154P	67280153P	1250	
64280156P	67280155P	1600	
64280157P	67280156P	2000	
64390154P	67390154P	2500	
64390156P	67390155P	3200	
64390157P	67390156P	4000	
64390158P	67390158P	5000	
-	67390159P	6300	

Single bar:
630A-2000A (Al)
800A-2000A (Cu)

Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

STRAIGHT ELEMENTS



64280130P

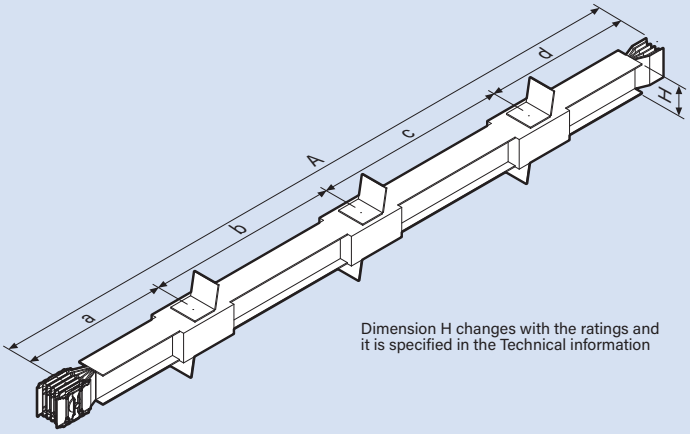
Item		Straight elements for distribution		
Al	Cu	In (A)	N° outlets	A (mm)
*64280130P	-	630	3+3 **	3000
*64280131P	*67280130P	800		
64280132P	*67280131P	1000		
64280134P	67280133P	1250		
64280136P	67280135P	1600		
64280137P	67280136P	2000		
64390134P	67390134P	2500		
64390136P	67390135P	3200		
64390137P	67390136P	4000		
64390138P	67390138P	5000		
-	67390139P	6300		
*64280970P	-	630	1+1	1001-1500
*64280971P	*67280970P	800		
64280972P	*67280971P	1000		
64280974P	67280973P	1250		
64280976P	67280975P	1600		
64280977P	67280976P	2000		
64390974P	67390974P	2500		
64390976P	67390975P	3200		
64390977P	67390976P	4000		
64390978P	67390978P	5000		at request: outlets in special position 1+1 only combination
-	67390979P	6300		
*64280920P	-	630	2+2 **	1501-2000
*64280921P	*67280920P	800		
64280922P	*67280921P	1000		
64280924P	67280923P	1250		
64280926P	67280925P	1600		
64280927P	67280926P	2000		
64390924P	67390924P	2500		
64390926P	67390925P	3200		
64390927P	67390926P	4000		
64390928P	67390928P	5000		
-	67390929P	6300		
*64280980P	-	630	2+2 **	2001-2500
*64280981P	*67280980P	800		
64280982P	*67280981P	1000		
64280984P	67280983P	1250		
64280986P	67280985P	1600		
64280987P	67280986P	2000		
64390984P	67390984P	2500		
64390986P	67390985P	3200		
64390987P	67390986P	4000		
64390988P	67390988P	5000		
-	67390989P	6300		
*64280950P	-	630	3+3 **	2501-2999
*64280951P	*67280950P	800		
64280952P	*67280951P	1000		
64280954P	67280953P	1250		
64280956P	67280955P	1600		
64280957P	67280956P	2000		
64390954P	67390954P	2500		
64390956P	67390955P	3200		
64390957P	67390956P	4000		
64390958P	67390958P	5000		
-	67390959P	6300		

Dimensions

Straight elements for distribution

- Straight elements for plug-in type tap-off boxes
- Standard 3000 mm
- Tap-off outlets on both sides

These straight elements enable the application of plug-in boxes on dedicated outlets.
Available in lengths from 1 to 3 meters, these elements have respectively 1. 2 and 3 outlets at preset distances with centre distances of 850 mm on both side.
(*) The exception to these are 630-800 A elements with Aluminium conductors (Al) and 800-1000 A elements with Copper conductors (Cu), where distributions are only available on the top side (in standard execution) for example "3+0".
On request, the length of the elements and the number and position of distribution outlets may be different from the standards measures.



Dimension H changes with the ratings and it is specified in the Technical information

MIN AND MAX DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium (Al)	630A – 5000A
Copper (Cu)	800A – 6300A
(L) min/MAX [mm]	1001 ***/3000

(***)For the length from 1001 mm to 1250 mm is possible to install only plug-in boxes Type 1 and 3
From 1250 mm to 3000 mm is possible to install all types of plug-in boxes.
Compatible boxes are listed in dedicated chapter. See page 89.

(**) at request is possible to have others combinations of outlets:
lenght: 1501÷2000 - outlets: (1+1)
lenght: 2001÷2500 - outlets: (1+1)
lenght: 2501÷2999 - outlets: (1+1) and (2+2)
lenght: 3000 - outlets: (1+1) and (2+2)
Possibility to have outlets in special position

For a correct evaluation of the number of outlets,take into account the length of the element and the size of the boxes to be installed.

STRAIGHT ELEMENTS

673IFB01

Item

Fire barrier elements S120 EI120 (EN 1366-3)

When the busbar trunking system crosses fire resistant walls or ceilings, it must be fitted with appropriate fire barriers.
The fire barrier is 630 mm (Al) and 1000 mm (Cu) long and must always be positioned in the middle of the fire resistant wall or ceiling crossed by the busbar.
After crossing fire resistant walls or ceilings, any cavity must be sealed with material meeting current regulations for the required building fire resistance class.

Al	Cu	In (A)	Type
673IFB01	**-**	630	internal fire barrier
673IFB01	**673IFB01**	800	
*	**673IFB01**	1000	
*	*	1250 – 2000	
673IFB01	**673IFB01**	2500 – 4000	
*	**673IFB01**	5000	
-	*	6300	
672EFB01	**-**	630	external fire barrier
672EFB01	**672EFB51**	800 – 1000	
672EFB02	**672EFB51**	1250	
672EFB03	**672EFB52**	1600	
672EFB04	**672EFB53**	2000	
673EFB02	**673EFB51**	2500	
673EFB03	**673EFB52**	3200	
673EFB04	**673EFB53**	4000	
673EFB05	**673EFB54**	5000	
-	**673EFB55**	6300	

*Inside these busbar there is no air gaps and so there is no need to add internal fire barriers.

Fire resistance tested

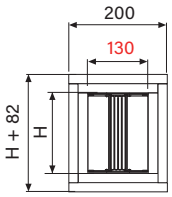
Single bar:
630A-2000A (Al)
800A-2000A (Cu)

Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

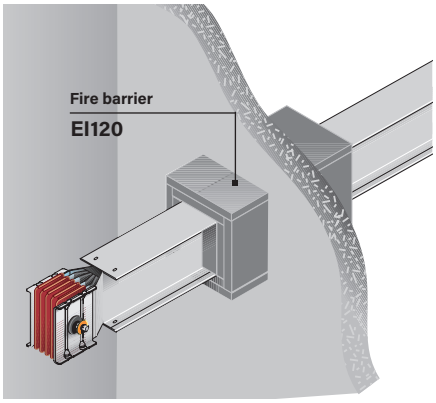
Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

Fire barrier elements EI120 (EN 1366-3)



Fire barrier sizes
Dimension H changes with the rating; it is specified in the technical information



For some ratings it is necessary to fit at the factory an internal fire barrier following the indications on the table.
It is therefore necessary to indicate at the order stage what elements will cross fire resistant walls or ceilings.

Figure 1 minimum straight dimensions

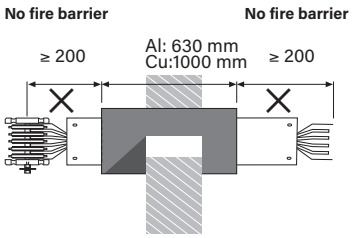
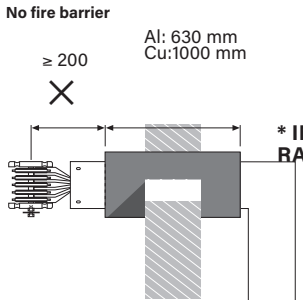


Figure 2 minimum dimensions in an elbow



*** INTERNAL BARRIER IN FEW RATINGS IS NOT REQUIRED**

USE OF INTERNAL OR EXTERNAL BARRIER					
Al			Cu		
In (A)	Internal	External	In (A)	Internal	External
630–800	√	√	800–1000	√	√
1000–2000	–	√	1250–2000	–	√
2500–4000	√	√	2500–5000	√	√
5000	–	√	6300	–	√

The external fire barrier can be used on any trunking component in compliance with the operating instructions specified in figures 1 and 2

To be comply to the Certification of Fire resistance it's necessary to install both internal* and external fire barrier supplied by Legrand.

* Internal barrier in few ratings is not required

STRAIGHT ELEMENTS

64280200P

Item

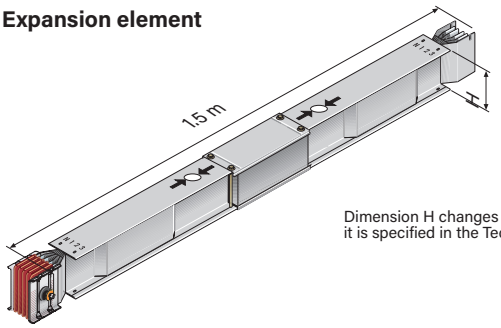
Expansion element

Due to being subjected to temperature changes, both the busbar and the building suffer thermal expansions.
The expansion element can absorb expansion and contraction of both the busbar trunking system section and the building, up to the maximum permitted length (± 50 mm approx.).
The expansion element must be fitted near the expansion joints of the building and in straight sections of the line (horizontal and/or vertical) longer than 40 m.
For straight line sections longer than 40 m, expansion elements must be fitted in a way that splits the path into equal sections not longer than 40 m.
XCP-S busbar trunking system elements are designed to compensate for thermal expansion if the straight sections of the installation are less than 40 m; in this case no expansion element is necessary.

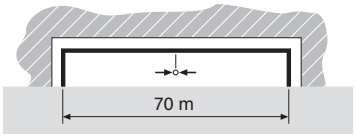
Al	Cu	In (A)	Length
64280200P	**-**	630	
64280201P	**67280200P**	800	
64280202P	**67280201P**	1000	
64280204P	**67280203P**	1250	
64280206P	**67280205P**	1600	
64280207P	**67280206P**	2000	1.5 m
64390204P	**67390204P**	2500	
64390206P	**67390205P**	3200	
64390207P	**67390206P**	4000	
64390208P	**67390208P**	5000	
-	**67390209P**	6300	

Dimensions

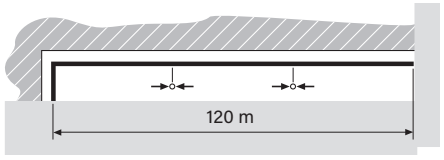
Expansion element



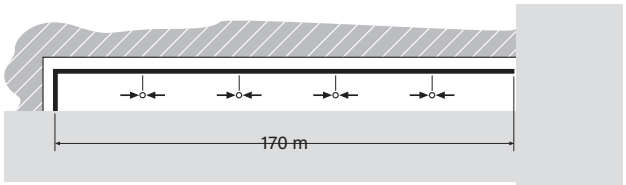
Dimension H changes with the ratings and it is specified in the Technical information



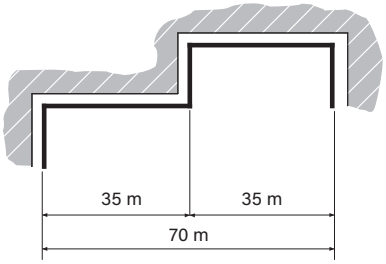
Example:
Straight section lenght 70 m = n°1 expansion element in the center of the line



Example:
Straight section lenght 120 m = n°2 expansion elements, one every 40 m



Example:
Straight section length 170 m = no. 4 expansion elements, one every 34 m



Example:
Section length 70 m. When the section is not straight, no expansion element is necessary

STRAIGHT ELEMENTS

64287100P

64287120P

64287140P

Item			Phase balancing
Al	Cu	In (A)	
64287100P	-	630	Straight elements with phase balancing are used to reduce and balance mutual phase reactance and impedance in case of long lines. In particularly long sections (> 100 metres) it is recommended that two transposition elements are fitted (one at one third and one at two thirds of the path), to balance the system electric impedance: In this way, it will be possible to have along the installation path all the possible combination, of reciprocal positions among phases, minimising load losses (Fig.1). If it's necessary to have the same phase sequence at the start and the end, use 3 phase balancing elements (fig.2).
64287101P	67287100P	800	
64287102P	67287101P	1000	
64287104P	67287103P	1250	
64287106P	67287105P	1600	
64287107P	67287106P	2000	
64397104P	67397104P	2500	
64397106P	67397105P	3200	
64397107P	67397106P	4000	
64397108P	67397108P	5000	
-	67397109P	6300	

			Phase inversion
Al	Cu	In (A)	
64287120P	-	630	The function of this element is to completely reverse the positions of the phases and the neutral. It is normally used in connections between transformer and electric board, or in the connections between electric boards, when the starting sequence is different from the arrival sequence.
64287121P	67287120P	800	
64287122P	67287121P	1000	
64287124P	67287123P	1250	
64287126P	67287125P	1600	
64287127P	67287126P	2000	
64397124P	67397124P	2500	
64397126P	67397125P	3200	
64397127P	67397126P	4000	
64397128P	67397128P	5000	
-	67397129P	6300	

			Element with Neutral rotation
Al	Cu	In (A)	
64287140P	-	630	The straight element with Neutral rotation is used to adapt the sequence of the busbar phases to the sequence of the connections required at the ends of the connections, should these be different. In the connection between electric boards, the neutral jump is normally used, as only the neutral position is normally identified.
64287141P	67287140P	800	
64287142P	67287141P	1000	
64287144P	67287143P	1250	
64287146P	67287145P	1600	
64287147P	67287146P	2000	
64397144P	67397144P	2500	
64397146P	67397145P	3200	
64397147P	67397146P	4000	
64397148P	67397148P	5000	
-	67397149P	6300	

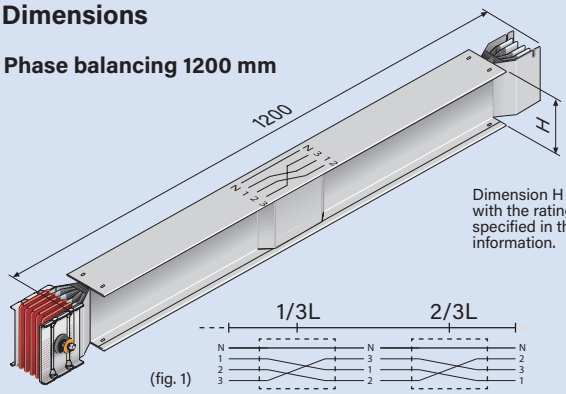
Single bar:
630A-2000A (Al)
800A-2000A (Cu)

Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

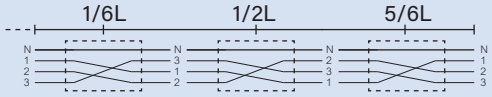
Phase balancing 1200 mm



Dimension H changes with the rating; it is specified in the technical information.

(fig. 1)

Electric diagram: 2 elements offer all the possible reciprocal positions among the phases along the line.



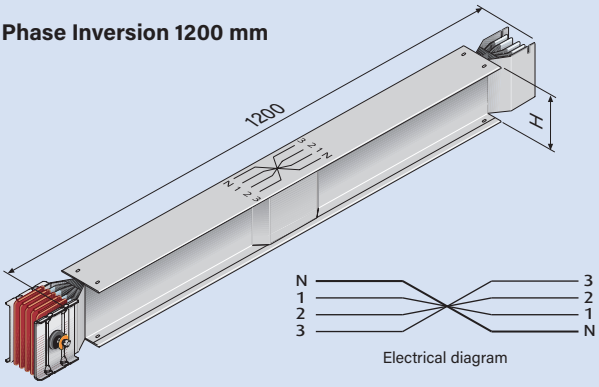
(fig. 2)

If it's necessary to have the same phase sequence at the start and the end, use 3 phase balancing elements.

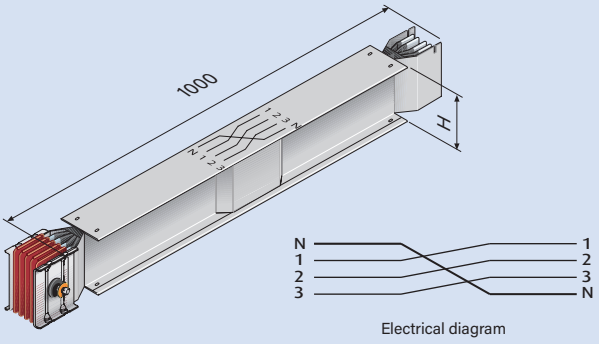
In particularly long carrying sections (L> 100 meters) it is recommended to insert 2 elements always by 2: (one placed at 1/3 and one placed at 2/3 of the trunking path) to balance the electric impedance of the system.
"L" is the total lenght of the path.

For example, in a line exceeding 300 m it is recommended that one phase transposition is fitted at 100 m, and another one at 200 m.

Phase Inversion 1200 mm



Element with neutral rotation 1000 mm



When the position of neutral of the distribution board phases is different from that of the transformer, it is possible to use an element that allows a neutral rotation only.

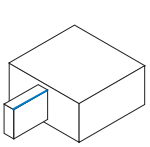
⚠ **Warning:** Use **phase inversion and neutral rotation elements** ONLY for transport paths, and not for derivations (not use it when the line includes straight elements with derivations, or when they are provided for tap-off boxes even if bolted on the junction)
The position of all the conductors, including the neutral, changes, and may cause serious problems on a connected load, if one is not fully aware that the phase sequence and the position of the neutral DO NOT comply with those indicated in the pre-printed labels.

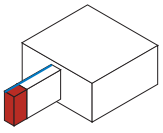
FEED UNIT

64281106P

The feed units are used at the end of the lines, when the busbar must be powered using cables. They are available in the right (without Monobloc) and left (with Monobloc fitted) version. On request they are available with non-standard execution. End feed units for single bar busbars are supplied with an aluminium blind back closing plate. For double bar busbar trunking systems the plates are 2.
Both versions are fitted with 2 extra side steel flanges and 2 inspection steel flanges (dark grey colour). The cable is connected directly to the busbars using bolts. For more information on board/busbar connection see the tables (Dimensions For The Box).
To feed the power supply cable through the back power supply flanges it will be necessary to drill a hole in case of single bar and two holes in case of double bar. The size of the holes is 170 x 410 mm.

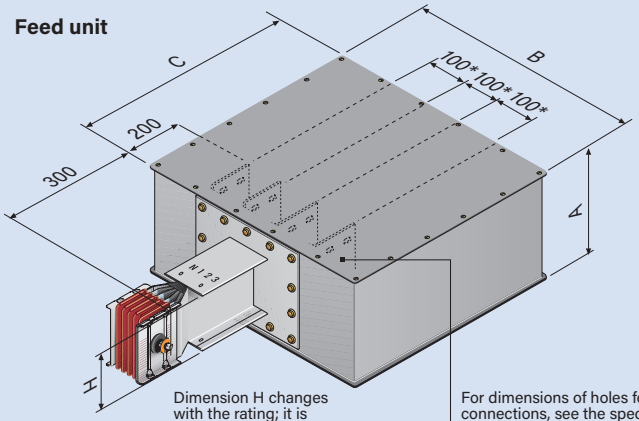
Item		Feed unit	
Al	**Cu**	In (A)	Type
64281100P	**-**	630	Right type 2
64281101P	**67281100P**	800	
64281102P	**67281101P**	1000	
64281104P	**67281103P**	1250	
64281106P	**67281105P**	1600	
64281107P	**67281106P**	2000	
64391104P	**67391104P**	2500	
64391106P	**67391105P**	3200	
64391107P	**67391106P**	4000	
64391108P	**67391108P**	5000	
-	**67391109P**	6300	
64281110P	**-**	630	Left type 1
64281111P	**67281110P**	800	
64281112P	**67281111P**	1000	
64281114P	**67281113P**	1250	
64281116P	**67281115P**	1600	
64281117P	**67281116P**	2000	
64391114P	**67391114P**	2500	
64391116P	**67391115P**	3200	
64391117P	**67391116P**	4000	
64391118P	**67391118P**	5000	
-	**67391119P**	6300	





Dimensions

Feed unit



Dimension H changes with the rating; it is specified in the technical information

For dimensions of holes for connections, see the specific pages of coverplate drilling details (page 36-37).

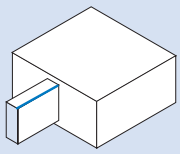
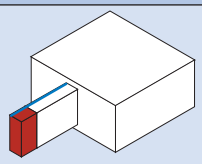
* 120 mm for 6300 A (Cu) and 5000 A (Al)

Rear cable input

Aluminium gland plate(s) for cable entry 170 x 410 mm
Single bar: 1 plate
Double bar: 2 plates

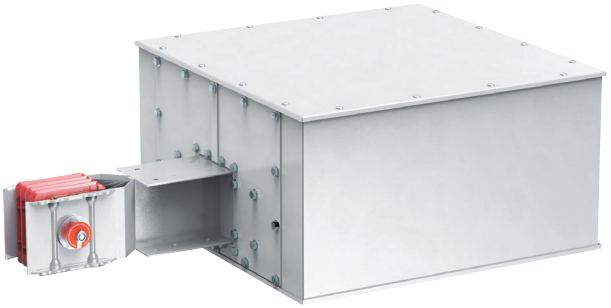
Dimensions FOR THE BOX				
Al	630A÷1250A	1600÷2000A	2500A÷4000A	
Cu	800A÷1250A	1600A÷2000A	2500÷5000A	6300A
(A) [mm]	320	320	600	815
(B) [mm]	615	615	615	615
(C) [mm]	610	810	810	810

Special dimensions (not standard) are available on request, please contact Starline

Type 2 (without monobloc)	Type 1 (with monobloc)
	

CONNECTIONS				
Load (A)	**The Copper (Cu) phase section is rounded up (mm^2)**	**No. of connection holes for each busbar conductor**	**No. of one-pole cables that can be connected to each phase**	
630	600	4	4x150	2x300
800				
1000				
1250	700	4	4x240	3x300
1600	850	8	4x240	3x300
2000	1100	8	5x240	4x300
2500	1400	8	6x240	5x300
3200	1700	16	8x240	6x300
4000	2100	16	9x240	7x300
5000	3000	16	14x240	10x300

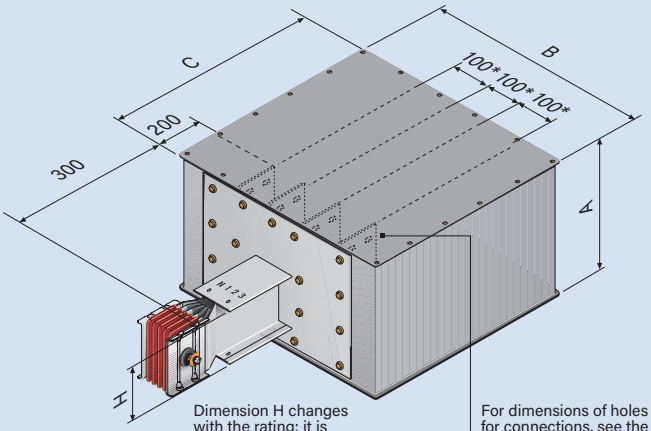
RISING MAINS FEED UNIT



67281133P

The rising mains feed units are used at the departure of the riser mains lines, when the busbar must be placed close to the wall and powered using cables. They are available in the right (without Monobloc)and left (with Monobloc fitted) versions, and they allow the busbar to be installed 40 mm away from the wall. On request they are available with non-standard execution. End feed units for single bar busbars are supplied with an aluminium blind back closing plate. For double bar busbar trunking systems the plates are 2. Both versions are fitted with 2 extra side steel flanges and 2 inspection steel flanges (dark grey colour). The cable is connected directly to the busbars using bolts.
For more information on board/busbar connection see the tables below (Dimensions For The Box). To feed the power supply cable through the back power supply flanges it will be necessary to drill a hole in case of single bar and two holes in case of double bar. The size of the holes is 170 x 410 mm.

Item		**Rising mains feed unit**	
Al	**Cu**	In (A)	Type
64281120P	**-**	630	Right type 2
64281121P	**67281120P**	800	
64281122P	**67281121P**	1000	
64281124P	**67281123P**	1250	
64281126P	**67281125P**	1600	
64281127P	**67281126P**	2000	
64391124P	**67391124P**	2500	
64391126P	**67391125P**	3200	
64391127P	**67391126P**	4000	
64391128P	**67391128P**	5000	
-	**67391129P**	6300	
64281130P	**-**	630	Left type 1
64281131P	**67281130P**	800	
64281132P	**67281131P**	1000	
64281134P	**67281133P**	1250	
64281136P	**67281135P**	1600	
64281137P	**67281136P**	2000	
64391134P	**67391134P**	2500	
64391136P	**67391135P**	3200	
64391137P	**67391136P**	4000	
64391138P	**67391138P**	5000	
-	**67391139P**	6300	



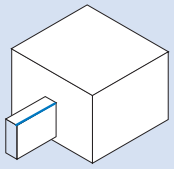
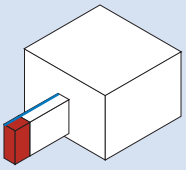
* 120 mm for 6300 A (Cu) and 5000 A (Al)

Rear cable input

Aluminium gland plate(s) for cable entry 170 x 410 mm
Single bar: 1 plate
Double bar: 2 plates

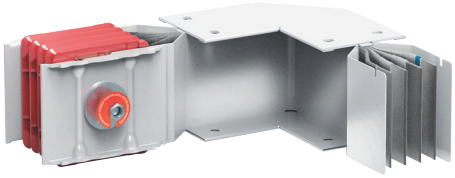
Dimensions FOR THE BOX				
Al	630A÷1250A	1600÷2000A	2500A÷4000A	
Cu	800A÷1250A	1600A÷2000A	2500÷5000A	6300A
(A) [mm]	320	320	600	815
(B) [mm]	615	615	615	615
(C) [mm]	610	810	810	810

Special dimensions (not standard) are available on request, please contact Legrand.

Type 2 (without monobloc)	**Type 1 (with monobloc)**
	

CONNECTIONS				
Load (A)	**The Copper (Cu) phase section is rounded up (mm^2)**	**No. of connection holes for each busbar conductor**	**No. of one-pole cables that can be connected to each phase**	
630	600	4	4x150	2x300
800				
1000				
1250	700	4	4x240	3x300
1600	850	8	4x240	3x300
2000	1100	8	5x240	4x300
2500	1400	8	6x240	5x300
3200	1700	16	8x240	6x300
4000	2100	16	9x240	7x300
5000	3000	16	14x240	10x300

ELBOWS



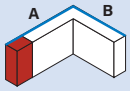
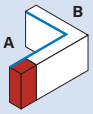
64280306P

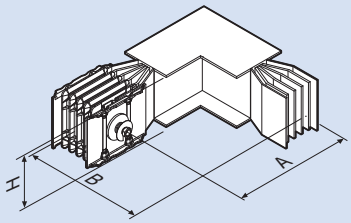
Item		Horizontal elbow		
Al	Cu	In (A)	Type	Type
64280300P	-	630		
64280301P	67280300P	800		
64280302P	67280301P	1000		
64280304P	67280303P	1250		
64280306P	67280305P	1600		
64280307P	67280306P	2000		Standard
64390304P	67390304P	2500		
64390306P	67390305P	3200		
64390307P	67390306P	4000		
64390308P	67390308P	5000		
-	67390309P	6300		
64280320P	-	630		
64280321P	67280320P	800		
64280322P	67280321P	1000		
64280324P	67280323P	1250		
64280326P	67280325P	1600	Right Type 1	
64280327P	67280326P	2000		Special lengths
64390324P	67390324P	2500		
64390326P	67390325P	3200		
64390327P	67390326P	4000		
64390328P	67390328P	5000		
-	67390329P	6300		
64280310P	-	630		
64280311P	67280310P	800		
64280312P	67280311P	1000		
64280314P	67280313P	1250		
64280316P	67280315P	1600		
64280317P	67280316P	2000		Standard
64390314P	67390314P	2500		
64390316P	67390315P	3200		
64390317P	67390316P	4000		
64390318P	67390318P	5000		
-	67390319P	6300		
64280330P	-	630		
64280331P	67280330P	800		
64280332P	67280331P	1000		
64280334P	67280333P	1250		
64280336P	67280335P	1600	Left Type 2	
64280337P	67280336P	2000		Special lengths
64390334P	67390334P	2500		
64390336P	67390335P	3200		
64390337P	67390336P	4000		
64390338P	67390338P	5000		
-	67390339P	6300		

Dimensions

Horizontal elbow

In order to define the type of horizontal elbow required, consider to place the element “edgewise” (conductors perpendicular to the ground). In this configuration
“horizontal” elbows enable a path variation parallel to the ground.
When the neutral busbar conductor faces the outside of the elbow, there will be a Right horizontal elbow (type 1)
Contrariwise, with the neutral busbar conductor facing the inside of the elbow there will be a Left horizontal elbow (type 2).

Type 1	Type 2
	



The dimensions are referred to the standard elements.
Single/double/triple bar (A+B): 300+300 mm

MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	250/1299*
Double bar min/MAX	
A	250/1299*
B	250/1299*
Triple bar min/MAX	
A	250/999*
B	250/999*

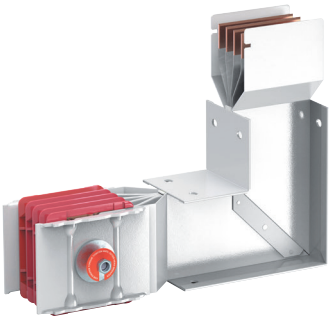
Dimension H changes with the rating; it is specified in the technical information

No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

* For all the non standard horizontal elbows (special), it is possible to have only one of the two sides in size exceeding 600 mm.
For example, when ordering an horizontal elbow with size A=1000 mm, the B size will have to be ≤ 600 mm.

Single bar:	Double bar:	Triple bar:
630A-2000A (Al) 800A-2000A (Cu)	2500A-4000A (Al) 2500A-5000A (Cu)	5000A (Al) 6300A (Cu)

ELBOWS



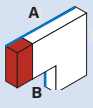
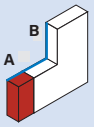
67280415P

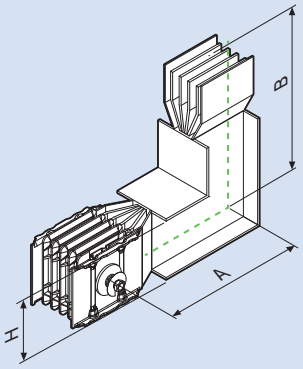
Item		Vertical elbow		
Al	Cu	In (A)	Type	Type
64280400P	-	630	Right Type 2	Standard
64280401P	67280400P	800		
64280402P	67280401P	1000		
64280404P	67280403P	1250		
64280406P	67280405P	1600		
64280407P	67280406P	2000		
64390404P	67390404P	2500		
64390406P	67390405P	3200		
64390407P	67390406P	4000		
64390408P	67390408P	5000		
-	67390409P	6300		
64280420P	-	630		Special length
64280421P	67280420P	800		
64280422P	67280421P	1000		
64280424P	67280423P	1250		
64280426P	67280425P	1600		
64280427P	67280426P	2000		
64390424P	67390424P	2500		
64390426P	67390425P	3200		
64390427P	67390426P	4000		
64390428P	67390428P	5000		
-	67390429P	6300		
64280410P	-	630	Left Type 1	Standard
64280411P	67280410P	800		
64280412P	67280411P	1000		
64280414P	67280413P	1250		
64280416P	67280415P	1600		
64280417P	67280416P	2000		
64390414P	67390414P	2500		
64390416P	67390415P	3200		
64390417P	67390416P	4000		
64390418P	67390418P	5000		
-	67390419P	6300		
64280430P	-	630		Special length
64280431P	67280430P	800		
64280432P	67280431P	1000		
64280434P	67280433P	1250		
64280436P	67280435P	1600		
64280437P	67280436P	2000		
64390434P	67390434P	2500		
64390436P	67390435P	3200		
64390437P	67390436P	4000		
64390438P	67390438P	5000		
-	67390439P	6300		

Dimensions

Vertical elbow

In order to define the type of vertical elbow, it is necessary to still place the element "edgewise" (conductors perpendicular to the ground), with the section with Monobloc facing the observer and the section without facing up. In this configuration, vertical “elbows” enable an up or down facing variation If the neutral is on the left side, there will be a left vertical elbow (Type 1).
If, on the other side, it is on the right side, there will be a right vertical elbow (Type 2).

Type 2	Type 1
	



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	250/1299*
Double bar min/MAX	
A	340/1449*
B	340/1449*
Triple bar min/MAX	
A	485/1199*
B	485/1199*

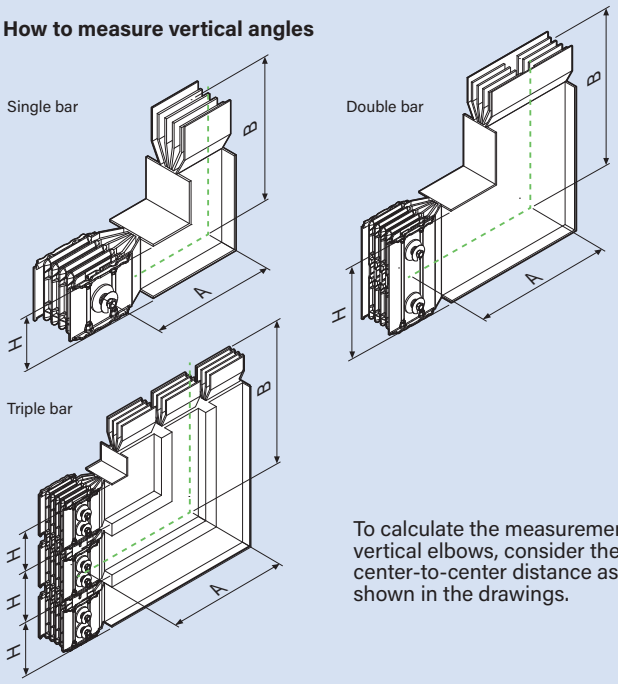
Dimension H changes with the rating;
it is specified in the technical information

The dimensions are referred to the standard elements.
Single bar (A+B) : 300+300 mm
Double bar (A+B) : 450+450 mm
Triple bar (A+B) : 500+500 mm

No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

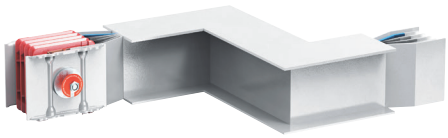
* For all the non standard vertical elbows (special), it is possible to have only one of the two sides in size exceeding 600 mm
For example, when ordering a vertical elbow with size A=1000 mm, the B size will have to be ≤ 600 mm

How to measure vertical angles

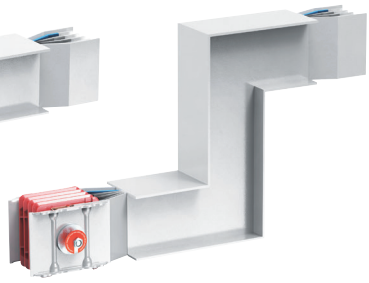


To calculate the measurements of vertical elbows, consider the center-to-center distance as shown in the drawings.

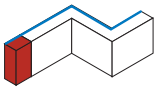
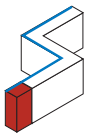
ELBOWS

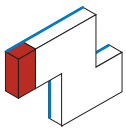
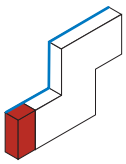


64280346P



64280456P

Item		Double horizontal elbow	
Al	Cu	In (A)	Type
64280340P	-	630	 Right Type 1
64280341P	67280340P	800	
64280342P	67280341P	1000	
64280344P	67280343P	1250	
64280346P	67280345P	1600	
64280347P	67280346P	2000	
64390344P	67390344P	2500	
64390346P	67390345P	3200	
64390347P	67390346P	4000	
64390348P	67390348P	5000	
-	67390349P	6300	
64280350P	-	630	 Left Type 2
64280351P	67280350P	800	
64280352P	67280351P	1000	
64280354P	67280353P	1250	
64280356P	67280355P	1600	
64280357P	67280356P	2000	
64390354P	67390354P	2500	
64390356P	67390355P	3200	
64390357P	67390356P	4000	
64390358P	67390358P	5000	
-	67390359P	6300	

		Double vertical elbow	
Al	Cu	In (A)	Type
64280440P	-	630	 Right Type 2
64280441P	67280440P	800	
64280442P	67280441P	1000	
64280444P	67280443P	1250	
64280446P	67280445P	1600	
64280447P	67280446P	2000	
64390444P	67390444P	2500	
64390446P	67390445P	3200	
64390447P	67390446P	4000	
64390448P	67390448P	5000	
-	67390449P	6300	
64280450P	-	630	 Left Type 1
64280451P	67280450P	800	
64280452P	67280451P	1000	
64280454P	67280453P	1250	
64280456P	67280455P	1600	
64280457P	67280456P	2000	
64390454P	67390454P	2500	
64390456P	67390455P	3200	
64390457P	67390456P	4000	
64390458P	67390458P	5000	
-	67390459P	6300	

Single bar:
630A-2000A (Al)
800A-2000A (Cu)

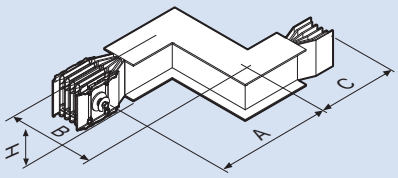
Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

Double horizontal elbow

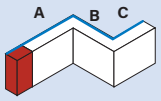
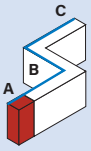
Double horizontal elbows are the union of two horizontal elbows; in order to define the type, it is enough to observe them starting from the Monobloc; if the first elbow met is left, we will have a double horizontal elbow left + right (Type 2). Contrariwise, if the first elbow met is right, we will have a double horizontal elbow right + left (Type 1).



The dimensions are referred to the standard elements.
Single/double/triple bar (A+B+C): 300+300+300 mm

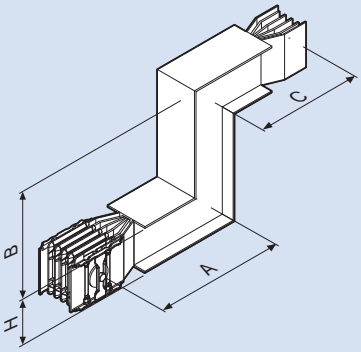
MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Double bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Triple bar min/MAX	
A	250/999*
B	50/599*
C	250/999*

Dimension H changes with the rating; it is specified in the technical information

Type 1	Type 2
	

Double vertical elbow

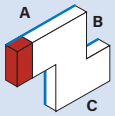
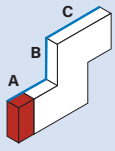
Double vertical elbows are the union of two vertical elbows; in order to define the type, it is enough to observe them starting from the Monobloc; if the first elbow met is left, we will have a double vertical elbow left + right (Type 1). Contrariwise, if the first elbow met is right, we will have a double vertical elbow right + left (Type 2).



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Double bar min/MAX	
A	340/1449*
B	50/899*
C	340/1449*
Triple bar min/MAX	
A	485/1199*
B	50/999*
C	485/1199*

Dimension H changes with the rating; it is specified in the technical information

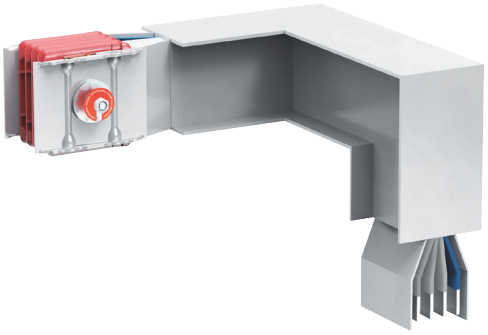
The dimensions are referred to the standard elements.
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 450+450+450 mm
Triple bar (A+B+C): 500+500+500 mm

Type 2	Type 1
	

No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

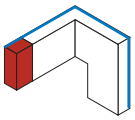
* Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310)

ELBOWS

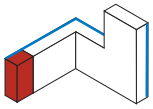


64280606P

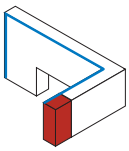
Item		Double elbow horizontal + vertical	
Al	**Cu**	In (A)	Type
64280600P	**-**	630	
64280601P	**67280600P**	800	
64280602P	**67280601P**	1000	
64280604P	**67280603P**	1250	
64280606P	**67280605P**	1600	
64280607P	**67280606P**	2000	
64390604P	**67390604P**	2500	
64390606P	**67390605P**	3200	
64390607P	**67390606P**	4000	
64390608P	**67390608P**	5000	
-	**67390609P**	6300	
64280610P	**-**	630	
64280611P	**67280610P**	800	
64280612P	**67280611P**	1000	
64280614P	**67280613P**	1250	
64280616P	**67280615P**	1600	
64280617P	**67280616P**	2000	
64390614P	**67390614P**	2500	
64390616P	**67390615P**	3200	
64390617P	**67390616P**	4000	
64390618P	**67390618P**	5000	
-	**67390619P**	6300	
64280620P	**-**	630	
64280621P	**67280620P**	800	
64280622P	**67280621P**	1000	
64280624P	**67280623P**	1250	
64280626P	**67280625P**	1600	
64280627P	**67280626P**	2000	
64390624P	**67390624P**	2500	
64390626P	**67390625P**	3200	
64390627P	**67390626P**	4000	
64390628P	**67390628P**	5000	
-	**67390629P**	6300	
64280630P	**-**	630	
64280631P	**67280630P**	800	
64280632P	**67280631P**	1000	
64280634P	**67280633P**	1250	
64280636P	**67280635P**	1600	
64280637P	**67280636P**	2000	
64390634P	**67390634P**	2500	
64390636P	**67390635P**	3200	
64390637P	**67390636P**	4000	
64390638P	**67390638P**	5000	
-	**67390639P**	6300	



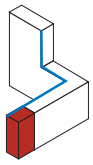
Type 1



Type 2



Type 3



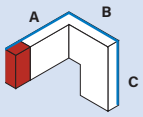
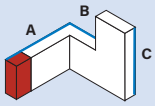
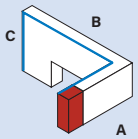
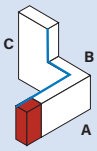
Type 4

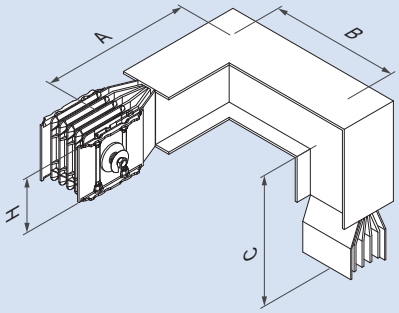
Dimensions

Double elbow horizontal + vertical

Double elbows horizontal + vertical are the union of a horizontal and a vertical elbow, placed in succession starting from the side with Monobloc.

Depending on the type of elbows, the double horizontal + vertical elbow may be of four different types:
- Double elbow Horizontal RH + Vertical RH (Type 1)
- Double elbow Horizontal RH + Vertical LH (Type 2)
- Double elbow Horizontal LH + Vertical RH (Type 3)
- Double elbow Horizontal LH + Vertical LH (Type 4)

Type 1	Type 2	Type 3	Type 4
			



MIN AND MAX DIMENSIONS OF SINGLE	
Single bar min/MAX	
A	250/1299*
B	150/599*
C	250/1299*
Double bar min/MAX	
A	250/1299*
B	235/899*
C	340/1449*
Triple bar min/MAX	
A	250/999*
B	380/799*
C	250/999*

The dimensions are referred to the standard elements
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 300+450+450 mm
Triple bar (A+B+C): 300+500+500 mm

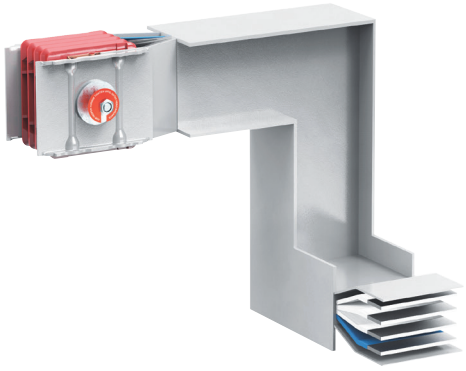
Dimension H changes with the rating; it is specified in the technical information

No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

⚠ * Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310)

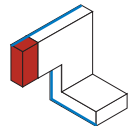
Note:
RH - Right
LH - Left

ELBOWS

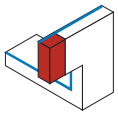


64280506P

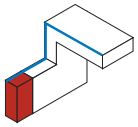
Item		Double elbow vertical + horizontal	
Al	Cu	In (A)	Type
64280500P	-	630	
64280501P	67280500P	800	
64280502P	67280501P	1000	
64280504P	67280503P	1250	
64280506P	67280505P	1600	
64280507P	67280506P	2000	
64390504P	67390504P	2500	
64390506P	67390505P	3200	
64390507P	67390506P	4000	
64390508P	67390508P	5000	
-	67390509P	6300	
64280510P	-	630	
64280511P	67280510P	800	
64280512P	67280511P	1000	
64280514P	67280513P	1250	
64280516P	67280515P	1600	
64280517P	67280516P	2000	
64390514P	67390514P	2500	
64390516P	67390515P	3200	
64390517P	67390516P	4000	
64390518P	67390518P	5000	
-	67390519P	6300	
64280520P	-	630	
64280521P	67280520P	800	
64280522P	67280521P	1000	
64280524P	67280523P	1250	
64280526P	67280525P	1600	
64280527P	67280526P	2000	
64390524P	67390524P	2500	
64390526P	67390525P	3200	
64390527P	67390526P	4000	
64390528P	67390528P	5000	
-	67390529P	6300	
64280530P	-	630	
64280531P	67280530P	800	
64280532P	67280531P	1000	
64280534P	67280533P	1250	
64280536P	67280535P	1600	
64280537P	67280536P	2000	
64390534P	67390534P	2500	
64390536P	67390535P	3200	
64390537P	67390536P	4000	
64390538P	67390538P	5000	
-	67390539P	6300	



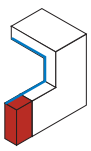
Type 1



Type 2



Type 3



Type 4

Single bar:
630A-2000A (Al)
800A-2000A (Cu)

Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

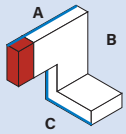
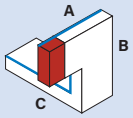
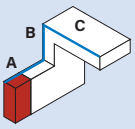
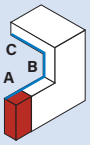
Triple bar:
5000A (Al)
6300A (Cu)

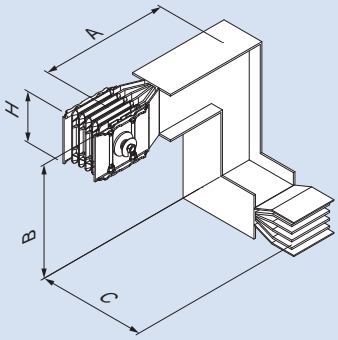
Dimensions

Double elbow vertical + horizontal

Double elbows vertical + horizontal are the union of a vertical and a horizontal elbow, placed in succession starting from the side with Monobloc.

Depending on the type of elbows, the double vertical + horizontal elbow may be of four different types:
- Double elbow vertical RH + horizontal RH (Type 1)
- Double elbow vertical RH + horizontal LH (Type 2)
- Double elbow vertical LH + horizontal RH (Type 3)
- Double elbow vertical LH + horizontal LH (Type 4)

Type 1	Type 2	Type 3	Type 4
			



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	150/599*
C	250/1299*
Double bar min/MAX	
A	340/1449*
B	325/899*
C	250/1299*
Triple bar min/MAX	
A	485/1199*
B	380/799*
C	250/999*

Dimension H changes with the rating; it is specified in the technical information

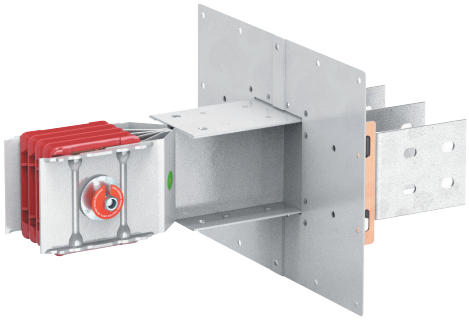
The dimensions are referred to the standard elements.
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 450+450+300 mm
Triple bar (A+B+C): 500+500+300 mm

No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

* Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310)

Note:
RH - Right
LH - Left

CONNECTION INTERFACES WITH EXIT BARS



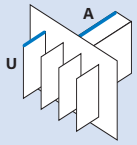
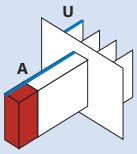
64281016P

Item		Connection interfaces with exit bars for panel boards		
Al	Cu	In (A)	Type	Type
64281000P	-	630		
64281001P	67281000P	800		
64281002P	67281001P	1000		
64281004P	67281003P	1250		
64281006P	67281005P	1600		
64281007P	67281006P	2000		Standard
64391004P	67391004P	2500		
64391006P	67391005P	3200		
64391007P	67391006P	4000		
64391008P	67391008P	5000		
-	67391009P	6300		
64281020P	-	630		
64281021P	67281020P	800		
64281022P	67281021P	1000	Right Type 2	
64281024P	67281023P	1250		
64281026P	67281025P	1600		
64281027P	67281026P	2000		Special
64391024P	67391024P	2500		
64391026P	67391025P	3200		
64391027P	67391026P	4000		
64391028P	67391028P	5000		
-	67391029P	6300		
64281010P	-	630		
64281011P	67281010P	800		
64281012P	67281011P	1000		
64281014P	67281013P	1250		
64281016P	67281015P	1600		
64281017P	67281016P	2000		Standard
64391014P	67391014P	2500		
64391016P	67391015P	3200		
64391017P	67391016P	4000		
64391018P	67391018P	5000		
-	67391019P	6300		
64281030P	-	630		
64281031P	67281030P	800		
64281032P	67281031P	1000	Left Type 1	
64281034P	67281033P	1250		
64281036P	67281035P	1600		
64281037P	67281036P	2000		Special
64391034P	67391034P	2500		
64391036P	67391035P	3200		
64391037P	67391036P	4000		
64391038P	67391038P	5000		
-	67391039P	6300		

Dimensions

Connection interfaces with exit bars

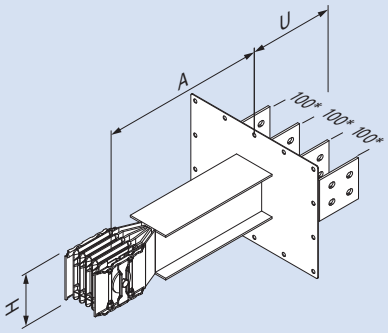
Standard connection interfaces are used at the end of the lines to connect the busbar to boards or transformers. They are available in the right (without Monobloc) and left (with Monobloc fitted) version. The drawings below refer to the standard versions.
Different executions are available on request (e.g.: length, centre distance between bar conductors, drilling, etc.).

Standard connection interface RH (Type 2 without monoblock fitted)	Standard connection interface LH (Type 1 with monoblock fitted)
	

Note:
RH - Right
LH - Left

Standard connection interface

See on page 36-37 the drawings with all drilling details for dimensions of coverplate (1) and bars (2)



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
U	150/400
A	200/1299
Double bar min/MAX	
U	150/400
A	200/1299
Triple bar min/MAX	
U	150/400
A	200/1299

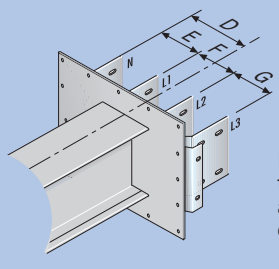
Dimension H changes with the rating; it is specified in the technical information

The dimensions are referred to the standard elements.
Single/double/triple bar (U+A): 200+300 mm

* 120 mm for 6300 A (Cu) and 5000 A (Al)

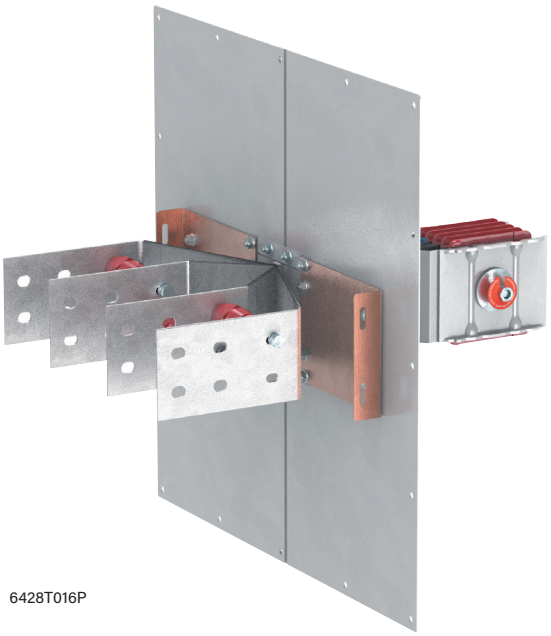
No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

Special connection interface with interaxes not standard



Dimensioning indications to be provided when using a non-standard centre distance

CONNECTION INTERFACES WITH EXIT BARS



6428T016P

Item		Connection interfaces with exit bars for transformers*		
Al	Cu	In (A)	Type	Type
6428T000P	-	630		
6428T001P	6728T000P	800		
6428T002P	6728T001P	1000		
6428T004P	6728T003P	1250		
6428T006P	6728T005P	1600		
6428T007P	6728T006P	2000		CRT
6439T004P	6739T004P	2500		
6439T006P	6739T005P	3200	Right Type 2	
6439T007P	6739T006P	4000		
6439T008P	6739T008P	5000		
-	6739T009P	6300		
6428T010P	-	630		
6428T011P	6728T010P	800		
6428T012P	6728T011P	1000		
6428T014P	6728T013P	1250		
6428T016P	6728T015P	1600		
6428T017P	6728T016P	2000		CRT
6439T014P	6739T014P	2500		
6439T016P	6739T015P	3200	Left Type 1	
6439T017P	6739T016P	4000		
6439T018P	6739T018P	5000		
-	6739T019P	6300		

*** cast resin, air insulated or oil filled transformers**

Single bar:
630A-2000A (Al)
800A-2000A (Cu)

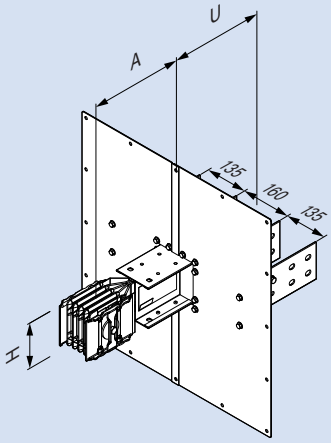
Double bar:
2500A-4000A (Al)
2500A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

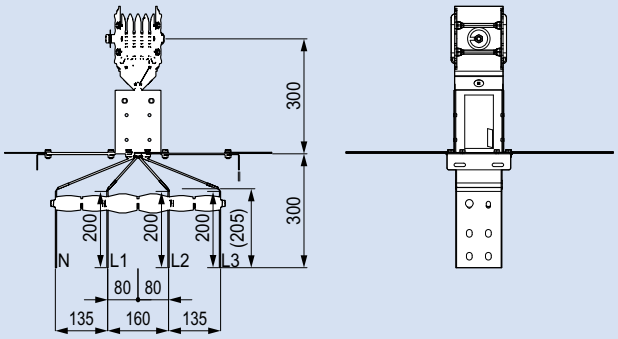
Connection interfaces with exit bars

Special connection interfaces are used at the end of the lines to connect the busbar to dry transformers. They are available in the right (without Monobloc) and left (with Monobloc fitted) version. The drawings below refer to the standard versions. Different executions are available on request (e.g.: length, centre distance between bar conductors, drilling, etc.).



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
U	300/400
A	200/1299
Double bar min/MAX	
U	300/400
A	200/1299
Triple bar min/MAX	
U	300/400
A	200/1299

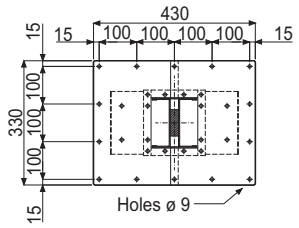
Dimension H changes with the rating; it is specified in the technical information



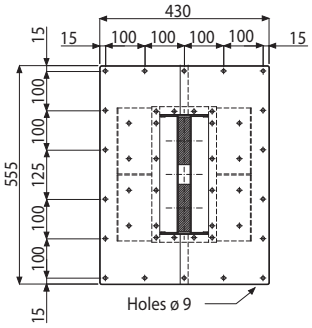
DIMENSIONS

Coverplate drilling details (1)

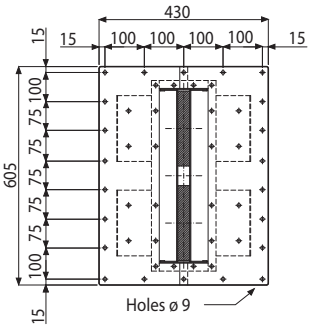
Al 630A–2000A
Cu 800A–2000A



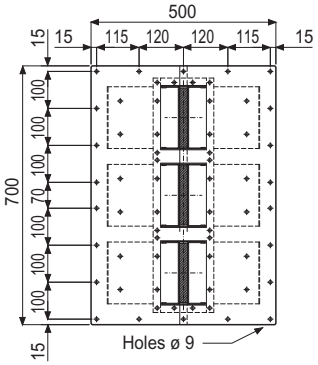
Al 2500A–3200A
Cu 2500A–4000A



Al 4000A
Cu 5000A

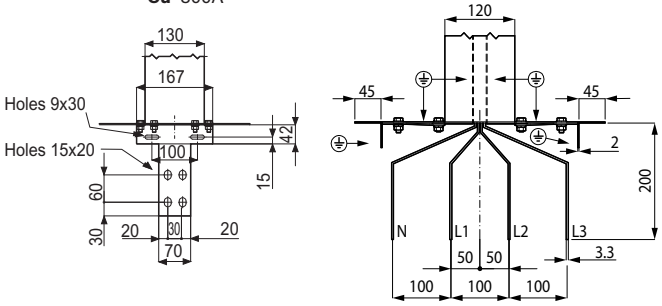


Al 5000A
Cu 6300A

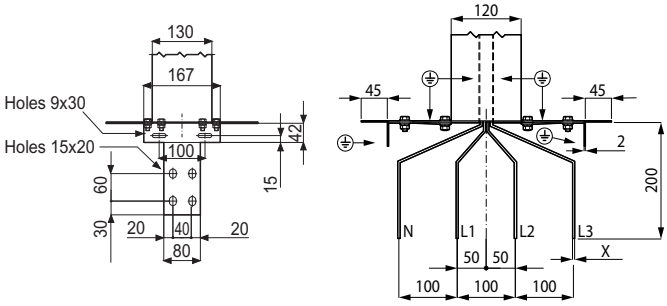


Bar drilling details (2) Side and front view

Al 630A
Cu 800A

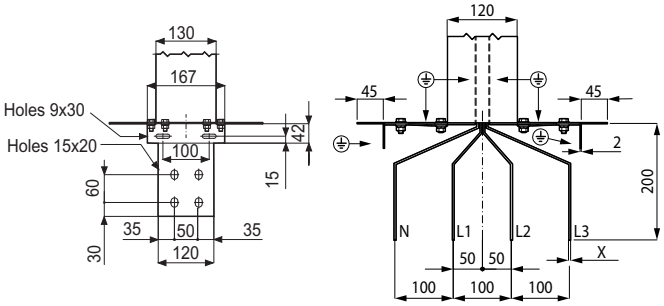


Al 800A
Cu 1000A



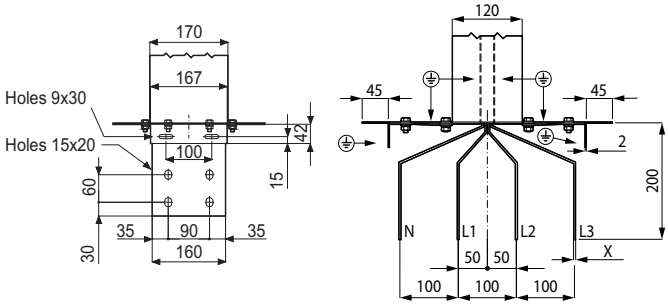
X= 4.4 (Al 800A)
3.8 (Cu 1000A)

Al 1000A
Cu 1250A



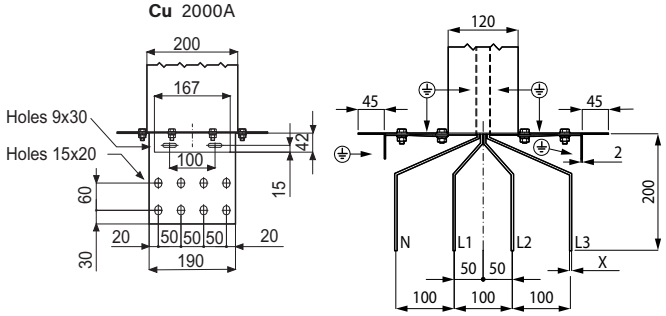
X= 3.5 (Al 1000A)
3.3 (Cu 1250A)

Al 1250A
Cu 1600A



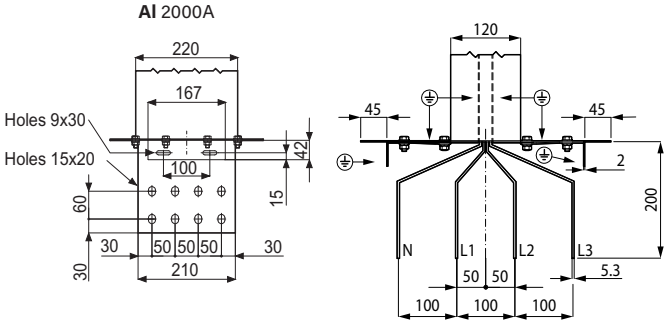
X= 3.5 (Al 1250A)
3.25 (Cu 1600A)

Al 1600A
Cu 2000A



X= 4.1 (Al 1600A)
3.8 (Cu 2000A)

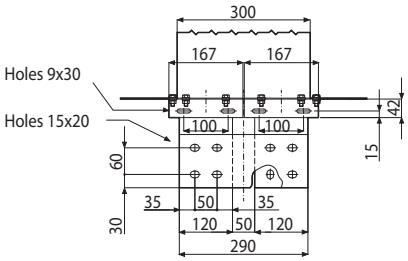
Al 2000A

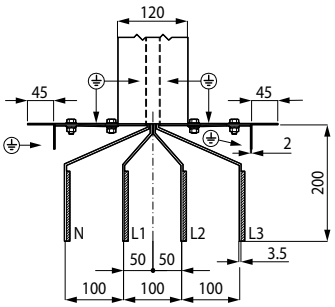


DIMENSIONS

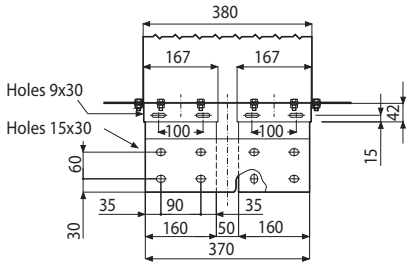
Bar drilling details (2) Side and front view

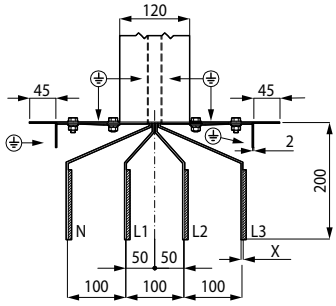
Cu 2500A





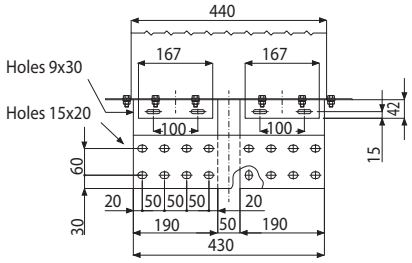
Al 2500A
Cu 3200A

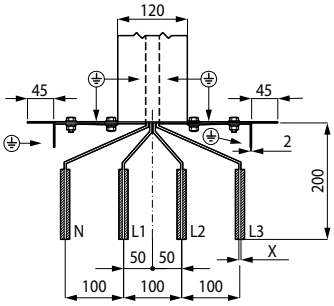




X= 3.5 (Al 2500A)
3.25 (Cu 3200A)

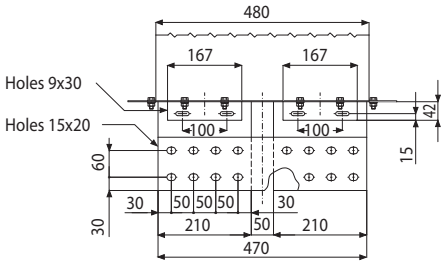
Al 3200A
Cu 4000A

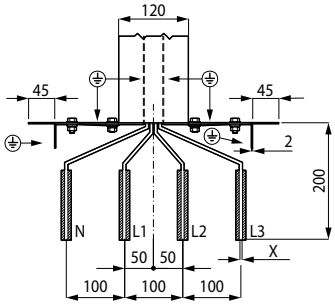




X= 4.1 (Al 3200A)
3.8 (Cu 4000A)

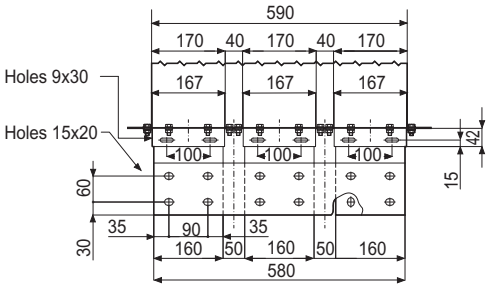
Al 4000A
Cu 5000A

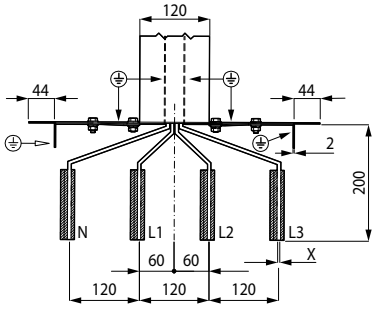




X= 5.3 (Al 4000A)
5.5 (Cu 5000A)

Al 5000A
Cu 6300A





X= 6.3 (Al 5000A)
6 (Cu 6300A)

TECHNICAL INFORMATION

General features

XCP-S line is available in the standard range:
From **630A to 5000A with aluminum alloy** conductors and **from 800A to 6300A with copper conductors.**
The compact dimensions of the XCP-S enhance **its resistance to short circuit stresses**; in addition, they can reduce the impedance of the circuit by controlling the voltage drops and allow for the installation of high power electrical systems, even in extremely confined spaces.
XCP-S is available with **a wide selection of tap-off boxes that range from 63A up to 1250A**, thus allowing you to locally protect and feed different types of loads by housing protective devices such as fuses, MCCBs and motorised switches.
XCP-S is not only in **compliance with** the harmonised **Standards CEI EN 61439-6** but also answers specifically to many clients needs for more severe conditions of use.
Thus **the rated current** of Starline's busbar trunking system is **always referred to the average ambient temperature of 35 °C**
The nominal range of all XCP-S is guaranteed both for horizontal installations (flat and edgewise) and for vertical installations without derating.
XCP-S busbar trunking systems are designed so that they can **be maintenance-free**, except for the periodic and compulsory inspections required by the Standard IEC 60364
The tightening torque inspection of the junction can be carried out by qualified personnel, even when the busbar is energized.

Structural features

The outer casing of the XCP-S line consists of four C-ribbed section bars, bordered and riveted (thickness 1.5mm), **with excellent mechanical, electric** and heat loss efficiency. **The sheetmetal is made of galvanized steel,** treated according to UNI EN10327 and **painted with RAL7035 resins** with a **high resistance to chemical agents**
The standard degree of protection is IP55, on request IP65 (only for transport of energy); with certain accessories, it can also be installed outdoors.
The busbar conductors have a rectangular cross section with rounded corners; there are two versions:

- **Electrolytic copper ETP 99.9 UNI EN13601**
- **Aluminum alloy** treated over the entire surface with **5 galvanic processes** (copper plating + tin plating)

The insulation between bars is ensured by a **double sheath made with polyester film** (total thickness 2x0.19 mm) **class B (130°C),** (total thickness 2x0.23 mm) **class F (155°C)** thermal resistance available on request. All plastic components have a **V1 self-extinguishing degree**; they are fire retardant and comply with the glow-wire test according to standards.
The XCP-S line is **Halogen Free.** In order to facilitate storage operations especially to reduce the installation time, the straight elements, trunking **components** as well as all the components of the XCP-S line are **supplied with a monobloc pre-installed at the factory**
The junction contact is ensured by **tin plated aluminium for XCP-S Al and copper for XCP-S Cu for each phase**, insulated with red **class F thermosetting plastic material**.
The **monobloc** has **shearhead bolts**: after tightening the nuts with a standard wrench, the outer head will break at the correct torque value, hence giving you the certainty that the connection has been made properly so as to guarantee safety and maximum performance over time.
Finally, in order to completely verify the insulation level, every finished product undergoes an **insulation test** (phase-phase, phase-PE) at the factory with a test voltage of 3500 Vac for 1.5 seconds. The test is performed on the finished product, completely assembled.
IP55 and IP65 is intended for internal use only, for outdoor applications is needed a canopy designed by us or RCP resin IP68 busbar.

RATED CURRENT OF XCP-S BARS (A)											
Al	630	800	1000	1250	1600	2000	2500	3200	4000	5000	
	Single bar						Double bar			Triple bar	
Cu		800	1000	1250	1600	2000	2500	3200	4000	5000	6300
	Single bar						Double bar				Triple bar

Standard versions:

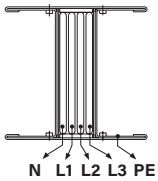
XCP-S line with 4 conductors
3P+N+PE, 3P+PE, 3P+FE+PE, 3L+PE, 3L+N+FE+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

Edgewise position **Flat position**

single bar double bar triple bar

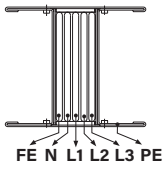
Phase sequence



XCP-S 5 line with 5 conductors
3P+N+FE+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

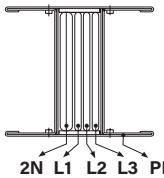
Phase sequence



XCP-S 2N 200% neutral line
3P+2N+PE

Note: For dimension H, see technical data section
PE: Protection Earth
2N : 200% neutral

Phase sequence



XCP-S GENERAL CORRECTION FACTOR FOR AMBIENT TEMPERATURES (KT)
XCP-S (AL)

Daily avg Ambient temperature	-5°C	0°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
Kt factor	1,24	1,21	1,15	1,12	1,09	1,06	1,03	1	0,97	0,93	0,90	0,87	0,83	0,79	0,76

Special versions on request

TECHNICAL DATA

XCP-S Al (4 Conductors)

3P+N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 220	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	25***	25***	36	42	42	80	80	95	120	120
Peak current	I_{pk} [kA]	53	53	76	88	88	176	176	209	264	264
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	312	1296	1764	1764	2500	4225	7225	10000	14400
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the neutral bar	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the protective circuit	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Phase resistance at 20°C	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,151	0,104	0,091	0,073	0,055	0,042	0,037	0,027	0,018	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,185	0,122	0,104	0,080	0,058	0,040	0,041	0,030	0,021	0,015
Phase impedance at thermal conditions	Z [mΩ/m]	0,193	0,131	0,115	0,091	0,068	0,050	0,047	0,034	0,023	0,017
Neutral resistance	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,110	0,106	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,049	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,272	0,224	0,208	0,176	0,152	0,135	0,107	0,092	0,082	0,051
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,190	0,142	0,126	0,095	0,073	0,054	0,049	0,038	0,030	0,023
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,224	0,176	0,161	0,121	0,096	0,078	0,064	0,050	0,040	0,032
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,303	0,257	0,244	0,199	0,170	0,147	0,115	0,097	0,086	0,055
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,233	0,190	0,179	0,133	0,106	0,079	0,065	0,050	0,040	0,032
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,262	0,217	0,205	0,153	0,122	0,097	0,077	0,059	0,048	0,039
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,187	0,123	0,102	0,077	0,055	0,039	0,038	0,028	0,019	0,014
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,201	0,139	0,121	0,097	0,074	0,056	0,049	0,036	0,023	0,018
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,178	0,162	0,157	0,138	0,124	0,116	0,088	0,078	0,072	0,044
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,193	0,175	0,170	0,151	0,133	0,123	0,093	0,081	0,074	0,045
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	146,1	104,2	93,2	76,1	57,7	43,0	39,0	28,5	18,8	14,3
	cosφ = 0,75	151,6	107,3	95,5	77,4	58,6	43,4	39,7	29,1	19,3	14,6
	cosφ = 0,80	156,7	109,9	97,4	78,5	59,1	43,6	40,2	29,4	19,6	14,8
	cosφ = 0,85	161,2	112,1	98,7	79,1	59,2	43,4	40,5	29,7	19,9	15,0
	cosφ = 0,90	164,9	113,5	99,4	79,0	58,8	42,8	40,5	29,6	20,0	15,0
	cosφ = 0,95	167,0	113,6	98,6	77,6	57,3	41,4	39,8	29,1	19,8	14,8
	cosφ = 1,00	160,2	105,6	89,9	68,9	49,8	35,0	35,3	25,8	18,0	13,3
Weight (PE 1)	p [kg/m]	14,3	15,6	16,0	18,9	22,5	27,4	34,1	41,5	50,4	68,6
Weight (PE 2)	p [kg/m]	17,6	18,9	19,3	23,3	27,7	33,9	42,1	51,0	61,0	81,7
Weight (PE 3)	p [kg/m]	15,4	16,7	17,1	20,3	24,2	29,2	36,7	44,6	54,0	72,9
Fire load	[kWh/m]	4,5	5,5	5,5	6,0	8,5	10,5	16,0	19,0	21,0	21,0
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	220	234	311	373	442	485	765	914	1000	1154
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1 s Icw = 20 kA

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S Al (5 Conductors - clean earth)

3P+N+PE+FE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 220	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	25***	25***	36	42	42	80	80	95	120	120
Peak current	I_{pk} [kA]	53	53	76	88	88	176	176	209	264	264
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	312	1296	1764	1764	2500	4225	7225	10000	14400
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the neutral bar	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the protective circuit	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Phase resistance at 20°C	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,151	0,104	0,091	0,073	0,055	0,042	0,037	0,027	0,018	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,185	0,122	0,104	0,080	0,058	0,040	0,041	0,030	0,021	0,015
Phase impedance at thermal conditions	Z [mΩ/m]	0,193	0,131	0,115	0,091	0,068	0,050	0,047	0,034	0,023	0,017
Neutral resistance	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Functional Earth resistance (FE)	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Functional Earth reactance (FE)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,110	0,106	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,049	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,208	0,146	0,125	0,096	0,071	0,052	0,050	0,037	0,026	0,019
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,177	0,124	0,107	0,080	0,059	0,042	0,041	0,030	0,022	0,016
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,193	0,136	0,117	0,088	0,065	0,047	0,044	0,033	0,024	0,018
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,248	0,194	0,178	0,134	0,104	0,078	0,066	0,049	0,037	0,029
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,222	0,178	0,166	0,123	0,096	0,072	0,059	0,044	0,034	0,027
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,235	0,186	0,173	0,128	0,100	0,075	0,062	0,046	0,035	0,028
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,187	0,123	0,102	0,077	0,055	0,039	0,038	0,028	0,019	0,014
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,201	0,139	0,121	0,097	0,074	0,056	0,049	0,036	0,023	0,018
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,187	0,123	0,102	0,077	0,055	0,039	0,038	0,028	0,019	0,014
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,201	0,139	0,121	0,097	0,074	0,056	0,049	0,036	0,023	0,018
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	146,1	104,2	93,2	76,1	57,7	43,0	39,0	28,5	18,8	14,3
	cosφ = 0,75	151,6	107,3	95,5	77,4	58,6	43,4	39,7	29,1	19,3	14,6
	cosφ = 0,80	156,7	109,9	97,4	78,5	59,1	43,6	40,2	29,4	19,6	14,8
	cosφ = 0,85	161,2	112,1	98,7	79,1	59,2	43,4	40,5	29,7	19,9	15,0
	cosφ = 0,90	164,9	113,5	99,4	79,0	58,8	42,8	40,5	29,6	20,0	15,0
	cosφ = 0,95	167,0	113,6	98,6	77,6	57,3	41,4	39,8	29,1	19,8	14,8
	cosφ = 1,00	160,2	105,6	89,9	68,9	49,8	35,0	35,3	25,8	18,0	13,3
Weight (PE 1)	p [kg/m]	15,3	17,0	17,6	20,9	25,2	31,1	38,3	47,1	58,0	78,5
Weight (PE 2)	p [kg/m]	18,6	20,3	20,9	25,3	30,3	37,6	46,3	56,6	68,6	91,6
Weight (PE 3)	p [kg/m]	16,4	18,0	18,7	22,3	26,9	33,0	40,9	50,2	61,5	82,8
Fire load	[kWh/m]	5,6	6,9	6,9	7,5	10,6	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	220	234	311	373	442	485	765	914	1000	1154
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1s Icw = 20 kA

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S Al (5 Conductors - double neutral)

3P+2N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 220	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	25***	25***	36	42	42	80	80	95	120	120
Peak current	I_{pk} [kA]	53	53	76	88	88	176	176	209	264	264
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	312	1296	1764	1764	2500	4225	7225	10000	14400
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the neutral bar	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the protective circuit	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Phase resistance at 20°C	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,151	0,104	0,091	0,073	0,055	0,042	0,037	0,027	0,018	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,185	0,122	0,104	0,080	0,058	0,040	0,041	0,030	0,021	0,015
Phase impedance at thermal conditions	Z [mΩ/m]	0,193	0,131	0,115	0,091	0,068	0,050	0,047	0,034	0,023	0,017
Neutral resistance	R_{20} [mΩ/m]	0,070	0,046	0,038	0,029	0,021	0,014	0,014	0,010	0,007	0,005
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,110	0,106	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,049	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,272	0,224	0,208	0,176	0,152	0,135	0,107	0,092	0,082	0,051
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,190	0,142	0,126	0,095	0,073	0,054	0,049	0,038	0,030	0,023
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,224	0,176	0,161	0,121	0,096	0,078	0,064	0,050	0,040	0,032
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,303	0,257	0,244	0,199	0,170	0,147	0,115	0,097	0,086	0,055
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,233	0,190	0,179	0,133	0,106	0,079	0,065	0,050	0,040	0,032
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,262	0,217	0,205	0,153	0,122	0,097	0,077	0,059	0,048	0,039
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,117	0,077	0,064	0,048	0,034	0,024	0,024	0,017	0,012	0,009
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,046	0,041	0,041	0,038	0,031	0,025	0,019	0,014	0,008	0,007
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,125	0,087	0,076	0,061	0,046	0,035	0,031	0,022	0,015	0,011
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,178	0,162	0,157	0,138	0,124	0,116	0,088	0,078	0,072	0,044
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,193	0,175	0,170	0,151	0,133	0,123	0,093	0,081	0,074	0,045
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	146,1	104,2	93,2	76,1	57,7	43,0	39,0	28,5	18,8	14,3
	cosφ = 0,75	151,6	107,3	95,5	77,4	58,6	43,4	39,7	29,1	19,3	14,6
	cosφ = 0,80	156,7	109,9	97,4	78,5	59,1	43,6	40,2	29,4	19,6	14,8
	cosφ = 0,85	161,2	112,1	98,7	79,1	59,2	43,4	40,5	29,7	19,9	15,0
	cosφ = 0,90	164,9	113,5	99,4	79,0	58,8	42,8	40,5	29,6	20,0	15,0
	cosφ = 0,95	167,0	113,6	98,6	77,6	57,3	41,4	39,8	29,1	19,8	14,8
	cosφ = 1,00	160,2	105,6	89,9	68,9	49,8	35,0	35,3	25,8	18,0	13,3
Weight (PE 1)	p [kg/m]	15,3	17,0	17,6	20,9	25,2	31,1	38,3	47,1	58,0	78,5
Weight (PE 2)	p [kg/m]	18,6	20,3	20,9	25,3	30,3	37,6	46,3	56,6	68,6	91,6
Weight (PE 3)	p [kg/m]	16,4	18,0	18,7	22,3	26,9	33,0	40,9	50,2	61,5	82,8
Fire load	[kWh/m]	5,6	6,9	6,9	7,5	10,6	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	220	234	311	373	442	485	765	914	1000	1154
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1 s Icw = 20 kA

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S AI (3 Conductors)

3P+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 220	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	25***	25***	36	42	42	80	80	95	120	120
Peak current	I_{pk} [kA]	53	53	76	88	88	176	176	209	264	264
Allowable specific energy for three-phase fault	I^2t [MA^{2}s]	312	312	1296	1764	1764	2500	4225	7225	10000	14400
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	12	12	22	25	25	48	48	57	72	72
Peak current of the protective circuit	I_{pk} [kA]	24	24	45	53	53	101	101	125	158	158
Phase resistance at 20°C	R_{20} [mΩ/m]	0,140	0,092	0,077	0,057	0,041	0,029	0,029	0,021	0,014	0,011
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,151	0,104	0,091	0,073	0,055	0,042	0,037	0,027	0,018	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,185	0,122	0,104	0,080	0,058	0,040	0,041	0,030	0,021	0,015
Phase impedance at thermal conditions	Z [mΩ/m]	0,193	0,131	0,115	0,091	0,068	0,050	0,047	0,034	0,023	0,017
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,110	0,106	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,049	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,272	0,224	0,208	0,176	0,152	0,135	0,107	0,092	0,082	0,051
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,190	0,142	0,126	0,095	0,073	0,054	0,049	0,038	0,030	0,023
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,224	0,176	0,161	0,121	0,096	0,078	0,064	0,050	0,040	0,032
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,303	0,257	0,244	0,199	0,170	0,147	0,115	0,097	0,086	0,055
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,233	0,190	0,179	0,133	0,106	0,079	0,065	0,050	0,040	0,032
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,262	0,217	0,205	0,153	0,122	0,097	0,077	0,059	0,048	0,039
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,178	0,162	0,157	0,138	0,124	0,116	0,088	0,078	0,072	0,044
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,193	0,175	0,170	0,151	0,133	0,123	0,093	0,081	0,074	0,045
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	146,1	104,2	93,2	76,1	57,7	43,0	39,0	28,5	18,8	14,3
	cosφ = 0,75	151,6	107,3	95,5	77,4	58,6	43,4	39,7	29,1	19,3	14,6
	cosφ = 0,80	156,7	109,9	97,4	78,5	59,1	43,6	40,2	29,4	19,6	14,8
	cosφ = 0,85	161,2	112,1	98,7	79,1	59,2	43,4	40,5	29,7	19,9	15,0
	cosφ = 0,90	164,9	113,5	99,4	79,0	58,8	42,8	40,5	29,6	20,0	15,0
	cosφ = 0,95	167,0	113,6	98,6	77,6	57,3	41,4	39,8	29,1	19,8	14,8
	cosφ = 1,00	160,2	105,6	89,9	68,9	49,8	35,0	35,3	25,8	18,0	13,3
Weight (PE 1)	p [kg/m]	13,3	14,2	14,5	16,9	19,8	23,6	29,9	35,9	42,9	58,8
Weight (PE 2)	p [kg/m]	16,6	17,5	17,8	21,3	25,0	30,1	37,9	45,4	53,4	71,8
Weight (PE 3)	p [kg/m]	14,3	15,3	15,5	18,3	21,5	25,5	32,5	39,0	46,4	63,0
Fire load	[kWh/m]	3,4	4,1	4,1	4,5	6,4	7,9	12,0	14,3	15,8	14,8
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	220	234	311	373	442	485	765	914	1000	1154
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1s Icw = 20 kA

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S CU (4 Conductors)

3P+N+PE		SINGLE BAR					DOUBLE BAR				TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 300	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	33	40	55	70	75	75	130	150	150	150
Peak current	I_{pk} [kA]	69	84	121	154	165	165	286	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	648	1764	1764	2500	4225	7225	10000	14400	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the neutral bar	Ipk [kA]	40	50	69	88	95	95	172	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Phase reactance (50hz)	X [mΩ/m]	0,023	0,017	0,017	0,015	0,014	0,011	0,007	0,006	0,006	0,005
Phase impedance	Z [mΩ/m]	0,080	0,061	0,048	0,037	0,028	0,024	0,018	0,014	0,010	0,008
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,081	0,061	0,045	0,034	0,029	0,024	0,017	0,011	0,009
Phase impedance at thermal conditions	Z [mΩ/m]	0,103	0,082	0,063	0,048	0,036	0,031	0,025	0,018	0,012	0,010
Neutral resistance	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,110	0,090	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,042	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,209	0,190	0,176	0,153	0,135	0,111	0,095	0,083	0,075	0,046
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,108	0,094	0,072	0,056	0,046	0,038	0,029	0,023	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,161	0,143	0,129	0,098	0,079	0,063	0,052	0,041	0,033	0,027
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,077	0,071	0,071	0,059	0,058	0,043	0,029	0,023	0,022	0,019
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,222	0,203	0,190	0,164	0,147	0,119	0,099	0,087	0,078	0,050
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,148	0,129	0,118	0,093	0,081	0,063	0,047	0,037	0,032	0,027
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,179	0,159	0,147	0,114	0,098	0,076	0,059	0,047	0,040	0,033
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,103	0,078	0,060	0,045	0,033	0,028	0,023	0,016	0,010	0,008
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,031	0,023	0,023	0,020	0,019	0,015	0,009	0,008	0,008	0,007
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,107	0,081	0,064	0,050	0,038	0,032	0,025	0,018	0,013	0,011
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,151	0,147	0,130	0,118	0,097	0,084	0,075	0,070	0,042
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,062	0,060	0,060	0,049	0,049	0,036	0,024	0,019	0,018	0,016
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,169	0,163	0,158	0,139	0,128	0,103	0,087	0,078	0,072	0,045
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	75,1	59,5	47,2	36,7	29,0	24,5	19,2	14,1	10,3	8,3
	cosφ = 0,75	78,4	62,2	49,1	37,9	29,9	25,3	19,9	14,6	10,5	8,4
	cosφ = 0,80	81,5	64,8	50,8	39,1	30,6	25,9	20,6	15,0	10,7	8,5
	cosφ = 0,85	84,4	67,2	52,3	40,1	31,1	26,5	21,2	15,4	10,7	8,6
	cosφ = 0,90	86,9	69,3	53,6	40,9	31,5	26,9	21,7	15,6	10,7	8,5
	cosφ = 0,95	88,8	71,0	54,4	41,2	31,4	27,0	22,0	15,7	10,6	8,4
	cosφ = 1,00	86,9	69,9	52,4	39,1	29,1	25,3	21,2	14,8	9,4	7,4
Weight (PE 1)	p [kg/m]	21,2	23,8	26,9	33,5	42,5	51,0	63,0	80,9	114,9	155,2
Weight (PE 2)	p [kg/m]	24,5	27,1	30,2	37,8	47,6	57,7	71,0	90,4	125,4	168,3
Weight (PE 3)	p [kg/m]	22,3	24,9	28,0	34,9	44,2	53,2	65,6	84,0	118,4	159,5
Fire load	[kWh/m]	4,5	5,5	5,5	8,0	8,2	10,5	16,0	19,0	21,0	22,0
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	193	242	284	347	403	547	752	823	816	1015
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S CU (5 Conductors - clean earth)

3P+N+PE+FE		SINGLE BAR					DOUBLE BAR				TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 300	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	33	40	55	70	75	75	130	150	150	150
Peak current	I_{pk} [kA]	69	84	121	154	165	165	286	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	648	1764	1764	2500	4225	7225	10000	14400	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the neutral bar	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Phase reactance (50hz)	X [mΩ/m]	0,023	0,017	0,017	0,015	0,014	0,011	0,007	0,006	0,006	0,005
Phase impedance	Z [mΩ/m]	0,080	0,061	0,048	0,037	0,028	0,024	0,018	0,014	0,010	0,008
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,081	0,061	0,045	0,034	0,029	0,024	0,017	0,011	0,009
Phase impedance at thermal conditions	Z [mΩ/m]	0,103	0,082	0,063	0,048	0,036	0,031	0,025	0,018	0,012	0,010
Neutral resistance	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Functional Earth resistance (FE)	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Functional Earth reactance (FE)	X [mΩ/m]	0,023	0,017	0,017	0,015	0,014	0,011	0,007	0,006	0,006	0,005
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,133	0,133	0,133	0,120	0,111	0,090	0,079	0,072	0,068	0,041
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,042	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,126	0,099	0,078	0,060	0,045	0,038	0,031	0,023	0,015	0,012
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,107	0,085	0,068	0,052	0,038	0,032	0,026	0,019	0,013	0,010
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,117	0,093	0,074	0,056	0,041	0,035	0,028	0,021	0,014	0,011
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,077	0,071	0,071	0,059	0,058	0,043	0,029	0,023	0,022	0,019
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,147	0,122	0,106	0,084	0,073	0,058	0,042	0,032	0,026	0,022
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,132	0,111	0,098	0,079	0,070	0,054	0,039	0,030	0,025	0,022
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,140	0,117	0,102	0,081	0,071	0,056	0,041	0,031	0,026	0,022
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,103	0,078	0,060	0,045	0,033	0,028	0,023	0,016	0,010	0,008
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,031	0,023	0,023	0,020	0,019	0,015	0,009	0,008	0,008	0,007
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,107	0,081	0,064	0,050	0,038	0,032	0,025	0,018	0,013	0,011
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,103	0,078	0,060	0,045	0,033	0,028	0,023	0,016	0,010	0,008
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,031	0,023	0,023	0,020	0,019	0,015	0,009	0,008	0,008	0,007
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,1	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	75,1	59,5	47,2	36,7	29,0	24,5	19,2	14,1	10,3	8,3
	cosφ = 0,75	78,4	62,2	49,1	37,9	29,9	25,3	19,9	14,6	10,5	8,4
	cosφ = 0,80	81,5	64,8	50,8	39,1	30,6	25,9	20,6	15,0	10,7	8,5
	cosφ = 0,85	84,4	67,2	52,3	40,1	31,1	26,5	21,2	15,4	10,7	8,6
	cosφ = 0,90	86,9	69,3	53,6	40,9	31,5	26,9	21,7	15,6	10,7	8,5
	cosφ = 0,95	88,8	71,0	54,4	41,2	31,4	27,0	22,0	15,7	10,6	8,4
	cosφ = 1,00	86,9	69,9	52,4	39,1	29,1	25,3	21,2	14,8	9,4	7,4
Weight (PE 1)	p [kg/m]	23,7	27,1	31,0	38,9	49,9	59,9	74,1	96,0	138,1	183,5
Weight (PE 2)	p [kg/m]	27,1	30,4	34,4	43,3	55,1	66,5	82,1	105,5	148,6	196,6
Weight (PE 3)	p [kg/m]	24,8	28,1	32,1	40,3	51,6	62,0	76,7	99,1	141,6	187,8
Fire load	[kWh/m]	5,6	6,9	6,9	10,0	10,3	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	193	242	284	347	403	547	752	823	816	1015
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S CU (5 Conductors - double neutral)

3P+2N+PE		SINGLE BAR					DOUBLE BAR				TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 300	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	33	40	55	70	75	75	130	150	150	150
Peak current	I_{pk} [kA]	69	84	121	154	165	165	286	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	648	1764	1764	2500	4225	7225	10000	14400	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the neutral bar	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Phase reactance (50hz)	X [mΩ/m]	0,023	0,017	0,017	0,015	0,014	0,011	0,007	0,006	0,006	0,005
Phase impedance	Z [mΩ/m]	0,080	0,061	0,048	0,037	0,028	0,024	0,018	0,014	0,010	0,008
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,081	0,061	0,045	0,034	0,029	0,024	0,017	0,011	0,009
Phase impedance at thermal conditions	Z [mΩ/m]	0,103	0,082	0,063	0,048	0,036	0,031	0,025	0,018	0,012	0,010
Neutral resistance	R_{20} [mΩ/m]	0,038	0,029	0,022	0,017	0,012	0,011	0,008	0,006	0,004	0,003
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,133	0,133	0,133	0,120	0,111	0,090	0,079	0,072	0,068	0,041
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,042	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,210	0,192	0,178	0,154	0,135	0,111	0,096	0,084	0,076	0,047
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,108	0,094	0,072	0,056	0,046	0,038	0,029	0,023	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,161	0,143	0,129	0,098	0,079	0,063	0,052	0,041	0,033	0,027
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,077	0,071	0,071	0,059	0,058	0,043	0,029	0,023	0,022	0,019
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,224	0,204	0,191	0,165	0,147	0,119	0,100	0,087	0,079	0,051
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,148	0,129	0,118	0,093	0,081	0,063	0,047	0,037	0,032	0,027
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,179	0,159	0,147	0,114	0,098	0,076	0,059	0,047	0,040	0,033
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,064	0,049	0,037	0,028	0,020	0,018	0,014	0,010	0,006	0,005
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,019	0,014	0,014	0,013	0,012	0,009	0,006	0,005	0,005	0,004
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,067	0,051	0,040	0,031	0,024	0,020	0,015	0,011	0,008	0,007
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,151	0,147	0,130	0,118	0,097	0,084	0,075	0,070	0,042
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,062	0,060	0,060	0,049	0,049	0,036	0,024	0,019	0,018	0,016
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	75,1	59,5	47,2	36,7	29,0	24,5	19,2	14,1	10,3	8,3
	cosφ = 0,75	78,4	62,2	49,1	37,9	29,9	25,3	19,9	14,6	10,5	8,4
	cosφ = 0,80	81,5	64,8	50,8	39,1	30,6	25,9	20,6	15,0	10,7	8,5
	cosφ = 0,85	84,4	67,2	52,3	40,1	31,1	26,5	21,2	15,4	10,7	8,6
	cosφ = 0,90	86,9	69,3	53,6	40,9	31,5	26,9	21,7	15,6	10,7	8,5
	cosφ = 0,95	88,8	71,0	54,4	41,2	31,4	27,0	22,0	15,7	10,6	8,4
	cosφ = 1,00	86,9	69,9	52,4	39,1	29,1	25,3	21,2	14,8	9,4	7,4
Weight (PE 1)	p [kg/m]	23,7	27,1	31,0	38,9	49,9	59,9	74,1	96,0	138,1	183,5
Weight (PE 2)	p [kg/m]	27,1	30,4	34,4	43,3	55,1	66,5	82,1	105,5	148,6	196,6
Weight (PE 3)	p [kg/m]	24,8	28,1	32,1	40,3	51,6	62,0	76,7	99,1	141,6	187,8
Fire load	[kWh/m]	5,6	6,9	6,9	10,0	10,3	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	193	242	284	347	403	547	752	823	816	1015
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

TECHNICAL DATA

XCP-S CU (3 Conductors)

3P+PE		SINGLE BAR					DOUBLE BAR				TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	120 x 130	120 x 130	120 x 130	120 x 170	120 x 200	120 x 300	120 x 380	120 x 440	120 x 480	120 x 590
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	33	40	55	70	75	75	130	150	150	150
Peak current	I_{pk} [kA]	69	84	121	154	165	165	286	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	312	648	1764	1764	2500	4225	7225	10000	14400	22500
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	19,8	24	33	42	45	45	78	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	40	50	69	88	95	95	172	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,058	0,045	0,034	0,024	0,021	0,017	0,012	0,008	0,006
Phase reactance (50hz)	X [mΩ/m]	0,023	0,017	0,017	0,015	0,014	0,011	0,007	0,006	0,006	0,005
Phase impedance	Z [mΩ/m]	0,080	0,061	0,048	0,037	0,028	0,024	0,018	0,014	0,010	0,008
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,081	0,061	0,045	0,034	0,029	0,024	0,017	0,011	0,009
Phase impedance at thermal conditions	Z [mΩ/m]	0,103	0,082	0,063	0,048	0,036	0,031	0,025	0,018	0,012	0,010
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,130	0,130	0,130	0,118	0,110	0,089	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,032	0,025	0,021	0,017	0,016	0,013
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,054	0,042	0,035	0,029	0,026	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,206	0,188	0,174	0,152	0,134	0,110	0,095	0,083	0,075	0,046
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,108	0,094	0,072	0,056	0,046	0,038	0,029	0,023	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,16	0,14	0,13	0,10	0,08	0,06	0,05	0,04	0,03	0,03
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,077	0,071	0,071	0,059	0,058	0,043	0,029	0,023	0,022	0,019
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,220	0,201	0,188	0,163	0,146	0,118	0,099	0,086	0,078	0,050
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,148	0,129	0,118	0,093	0,081	0,063	0,047	0,037	0,032	0,027
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,179	0,159	0,147	0,114	0,098	0,076	0,059	0,047	0,040	0,033
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,151	0,147	0,130	0,118	0,097	0,084	0,075	0,070	0,042
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,062	0,060	0,060	0,049	0,049	0,036	0,024	0,019	0,018	0,016
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	75,1	59,5	47,2	36,7	29,0	24,5	19,2	14,1	10,3	8,3
	cosφ = 0,75	78,4	62,2	49,1	37,9	29,9	25,3	19,9	14,6	10,5	8,4
	cosφ = 0,80	81,5	64,8	50,8	39,1	30,6	25,9	20,6	15,0	10,7	8,5
	cosφ = 0,85	84,4	67,2	52,3	40,1	31,1	26,5	21,2	15,4	10,7	8,6
	cosφ= 0,90	86,9	69,3	53,6	40,9	31,5	26,9	21,7	15,6	10,7	8,5
	cosφ = 0,95	88,8	71,0	54,4	41,2	31,4	27,0	22,0	15,7	10,6	8,4
	cosφ = 1,00	86,9	69,9	52,4	39,1	29,1	25,3	21,2	14,8	9,4	7,4
Weight (PE 1)	p [kg/m]	18,7	20,6	22,9	28,0	35,0	42,2	51,9	65,8	91,6	126,8
Weight (PE 2)	p [kg/m]	22,0	23,9	26,2	32,4	40,2	48,8	59,9	75,3	102,1	139,9
Weight (PE 3)	p [kg/m]	19,7	21,7	23,9	29,5	36,7	44,4	54,5	68,9	95,1	131,0
Fire load	[kWh/m]	3,4	4,1	4,1	6,0	6,2	7,9	12,0	14,3	15,8	16,8
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	193	242	284	347	403	547	752	823	816	1015
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 35°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Legrand.

XCP-HP

Busbar from 630 to 6300 A

The High Performance power solution for data center applications

XCP-HP is a busbar trunking system characterized by high performance and low losses due to the joule effect.
Used for transport and distribution of High Power, and is also highly valued in rising mains.

STRAIGHT ELEMENTS

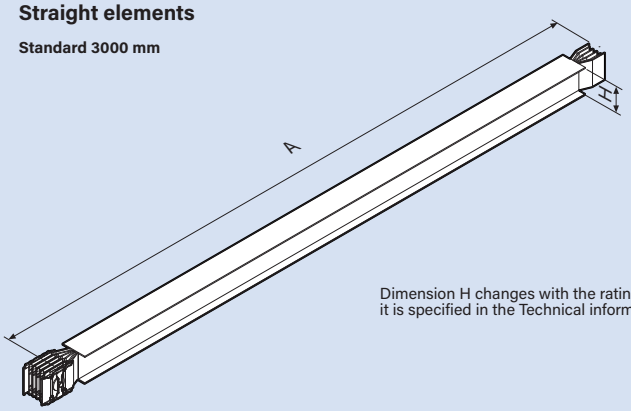
63280100P

XCP-HP Line:
Reference standard: IEC 61439-6. Reference temperature: up to 55 °C.
Protection degree: IP55. Thickness of metal sheet: 1.5 mm.
N° of conductors: 3, 4 or 5. Painted: RAL 7035. Halogen Free.
The insulation between bars is ensured by a double sheet made with polyester film class B(130°C), class F (155°C) thermal resistance available on request. All plastic components have a V1 self-extinguishing degree (as per UL94); they are fire retardant and comply with the glow-wire test according to standards.

Dimensions

Straight elements

Standard 3000 mm

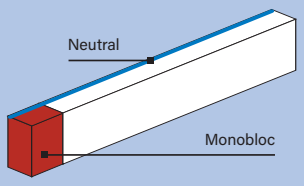


Dimension H changes with the ratings and it is specified in the Technical information

MIN AND MAX DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium (Al)	630A – 5000A
Copper (Cu)	800A – 6300A
(L) min/MAX [mm]	500/3000

Straight elements are available on reques only for transport of energy:
Al: 5000A
Cu: 6300A

Notes
The product versions in the whole catalogue will be simplified as shown opposite, highlighting the part with the monobloc installed in red and the neutral side in blue.
In the whole catalogue, the measurements shown refer to the element centre distance



The range is also available on request in different versions:
(5 Conductors with dedicated PE conductor, double neutral and more others...)

Item — **Straight elements for transport**

Al	Cu	In (A)	A (mm)
63280100P	**-**	630	3000
63280101P	**66280100P**	800	
63280102P	**66280101P**	1000	
63280104P	**66280103P**	1250	
63280106P	**66280105P**	1600	
63280107P	**66280106P**	2000	
63390104P	**66280108P**	2500	
63390106P	**66390105P**	3200	
63390107P	**66390106P**	4000	
63390108P	**66390108P**	5000	
-	**66390109P**	6300	
63280110P	**-**	630	500-1000
63280111P	**66280110P**	800	
63280112P	**66280111P**	1000	
63280114P	**66280113P**	1250	
63280116P	**66280115P**	1600	
63280117P	**66280116P**	2000	
63390114P	**66280118P**	2500	
63390116P	**66390115P**	3200	
63390117P	**66390116P**	4000	
63390118P	**66390118P**	5000	
-	**66390119P**	6300	
63280170P	**-**	630	1001-1500
63280171P	**66280170P**	800	
63280172P	**66280171P**	1000	
63280174P	**66280173P**	1250	
63280176P	**66280175P**	1600	
63280177P	**66280176P**	2000	
63390174P	**66280178P**	2500	
63390176P	**66390175P**	3200	
63390177P	**66390176P**	4000	
63390178P	**66390178P**	5000	
-	**66390179P**	6300	
63280120P	**-**	630	1501-2000
63280121P	**66280120P**	800	
63280122P	**66280121P**	1000	
63280124P	**66280123P**	1250	
63280126P	**66280125P**	1600	
63280127P	**66280126P**	2000	
63390124P	**66280128P**	2500	
63390126P	**66390125P**	3200	
63390127P	**66390126P**	4000	
63390128P	**66390128P**	5000	
-	**66390129P**	6300	
63280180P	**-**	630	2001-2500
63280181P	**66280180P**	800	
63280182P	**66280181P**	1000	
63280184P	**66280183P**	1250	
63280186P	**66280185P**	1600	
63280187P	**66280186P**	2000	
63390184P	**66280188P**	2500	
63390186P	**66390185P**	3200	
63390187P	**66390186P**	4000	
63390188P	**66390188P**	5000	
-	**66390189P**	6300	

Item — **Straight elements for transport**

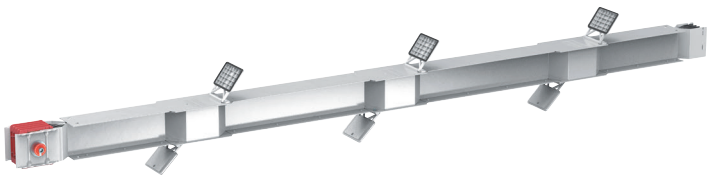
Al	Cu	In (A)	A (mm)
63280150P	**-**	630	2501-2999
63280151P	**66280150P**	800	
63280152P	**66280151P**	1000	
63280154P	**66280153P**	1250	
63280156P	**66280155P**	1600	
63280157P	**66280156P**	2000	
63390154P	**66280158P**	2500	
63390156P	**66390155P**	3200	
63390157P	**66390156P**	4000	
63390158P	**66390158P**	5000	
-	**66390159P**	6300	

Single bar:
630A-2000A (Al)
800A-2500A (Cu)

Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

STRAIGHT ELEMENTS



63280130P

Item		Straight elements for distribution		
Al	Cu	In (A)	N° outlets	A (mm)
*63280130P	-	630	3+3 **	3000
*63280131P	*66280130P	800		
63280132P	*66280131P	1000		
63280134P	66280133P	1250		
63280136P	66280135P	1600		
63280137P	66280136P	2000		
63390134P	66280138P	2500		
63390136P	66390135P	3200		
63390137P	66390136P	4000		
63390138P	66390138P	5000		
-	66390139P	6300		
*63280970P	-	630	1+1	1001-1500
*63280971P	*66280970P	800		
63280972P	*66280971P	1000		
63280974P	66280973P	1250		
63280976P	66280975P	1600		
63280977P	66280976P	2000		
63390974P	66280978P	2500		
63390976P	66390975P	3200		
63390977P	66390976P	4000		
63390978P	66390978P	5000		
-	66390979P	6300		
*63280920P	-	630	2+2 **	1501-2000
*63280921P	*66280920P	800		
63280922P	*66280921P	1000		
63280924P	66280923P	1250		
63280926P	66280925P	1600		
63280927P	66280926P	2000		
63390924P	66280928P	2500		
63390926P	66390925P	3200		
63390927P	66390926P	4000		
63390928P	66390928P	5000		
-	66390929P	6300		
*63280980P	-	630	2+2 **	2001-2500
*63280981P	*66280980P	800		
63280982P	*66280981P	1000		
63280984P	66280983P	1250		
63280986P	66280985P	1600		
63280987P	66280986P	2000		
63390984P	66280988P	2500		
63390986P	66390985P	3200		
63390987P	66390986P	4000		
63390988P	66390988P	5000		
-	66390989P	6300		
*63280950P	-	630	3+3 **	2501-2999
*63280951P	*66280950P	800		
63280952P	*66280951P	1000		
63280954P	66280953P	1250		
63280956P	66280955P	1600		
63280957P	66280956P	2000		
63390954P	66280958P	2500		
63390956P	66390955P	3200		
63390957P	66390956P	4000		
63390958P	66390958P	5000		
-	66390959P	6300		

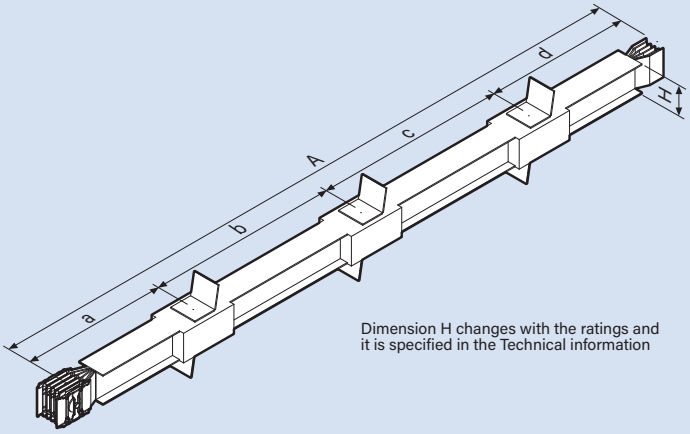
at request: outlets in special position 1+1 only combination

Dimensions

Straight elements for distribution

- Straight elements for plug-in type tap-off boxes
- Standard 3000 mm
- Tap-off outlets on both sides

These straight elements enable the application of plug-in boxes on dedicated outlets.
Available in lengths from 1 to 3 meters, these elements have respectively 1. 2 and 3 outlets at preset distances with centre distances of 850 mm on both side.
(*) The exception to these are 630-800 A elements with Aluminium conductors (Al) and 800-1000 A elements with Copper conductors (Cu), where distributions are only available on the top side (in standard execution) for example "3+0".
On request, the length of the elements and the number and position of distribution outlets may be different from the standards measures.



Dimension H changes with the ratings and it is specified in the Technical information

MIN AND MAX DIMENSIONS OF SINGLE AND DOUBLE BAR	
Aluminium (Al)	630A – 5000A
Copper (Cu)	800A – 6300A
(L) min/MAX [mm]	1001 ***/3000

(***)For the length from 1000 mm to 1250 mm is possible to install only plug-in boxes Type 1 and 3.
From 1250 mm to 3000 mm is possible to install all types of plug-in boxes.
Compatible boxes are listed in dedicated chapter. See page 89.

(**) at request is possible to have others combinations of outlets:
lenght: 1501÷2000 - outlets: (1+1)
lenght: 2001÷2500 - outlets: (1+1)
lenght: 2501÷2999 - outlets: (1+1) and (2+2)
lenght: 3000 - outlets: (1+1) and (2+2)
Possibility to have outlets in special position

STRAIGHT ELEMENTS

673IFB01

Item

Fire barrier elements S120 EI120 (EN 1366-3)

When the busbar trunking system crosses fire resistant walls or ceilings, it must be fitted with appropriate fire barriers.
The fire barrier is 630 mm (Al) and 1000 mm (Cu) long and must always be positioned in the middle of the fire resistant wall or ceiling crossed by the busbar.
After crossing fire resistant walls or ceilings, any cavity must be sealed with material meeting current regulations for the required building fire resistance class.

Al	Cu	In (A)	Type
*	-	630	internal fire barrier
*	673IFB01	800	
673IFB01	*	1000	
*	*	1250	
673IFB01	*	1600 – 2500	
673IFB01	673IFB01	3200 – 4000	
*	673IFB01	5000	
-	*	6300	
672EFB01	-	630	external fire barrier
672EFB01	672EFB51	800 – 1000	
672EFB02	672EFB51	1250	
672EFB03	672EFB52	1600	
672EFB04	672EFB53	2000	
673EFB02	673EFB51	2500	
673EFB03	673EFB52	3200	
673EFB04	673EFB53	4000	
673EFB05	673EFB54	5000	
-	673EFB55	6300	

*Inside these busbar there is no air gaps and so there is no need to add internal fire barriers.

Fire resistance tested

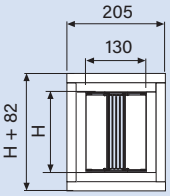
Single bar:
630A-2000A (Al)
800A-2500A (Cu)

Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

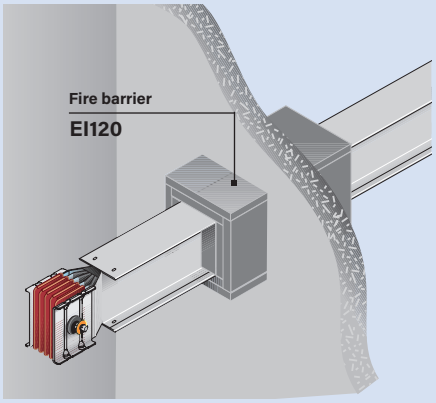
Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

Fire barrier elements EI120 (EN 1366-3)



Fire barrier sizes
Dimension H changes with the rating; it is specified in the technical information



For some ratings it is necessary to fit at the factory an internal fire barrier following the indications on the table.
It is therefore necessary to indicate at the order stage what elements will cross fire resistant walls or ceilings

Figure 1 minimum straight dimensions

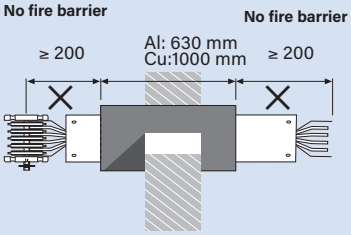
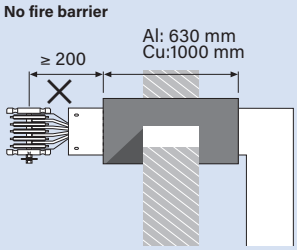


Figure 2 minimum dimensions in an elbow



USE OF INTERNAL OR EXTERNAL BARRIER					
Al			Cu		
In (A)	Internal	External	In (A)	Internal	External
630–800	–	√	800	√	√
1000	√	√	1000–2500	–	√
1250	–	√	3200–5000	√	√
1600–4000	√	√	6300	–	√
5000	–	√			

The external fire barrier can be used on any trunking component in compliance with the operating instructions specified in figures 1 and 2

To be comply to the Certification of Fire resistance it's necessary to install both internal* and external fire barrier supplied by Legrand.

* Internal barrier in few ratings is not required

STRAIGHT ELEMENTS

63280200P

Item

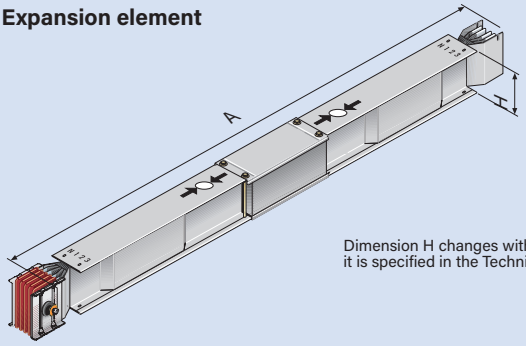
Expansion element

Due to being subjected to temperature changes, both the busbar and the building suffer thermal expansions.
The expansion element can absorb expansion and contraction of both the busbar trunking system section and the building, up to the maximum permitted length (± 50 mm approx.).
The expansion element must be fitted near the expansion joints of the building and in straight sections of the line (horizontal and/or vertical) longer than 40 m.
For straight line sections longer than 40 m, expansion elements must be fitted in a way that splits the path into equal sections not longer than 40 m.
XCP-HP busbar trunking system elements are designed to compensate for thermal expansion if the straight sections of the installation are less than 40 m; in this case no expansion element is necessary.

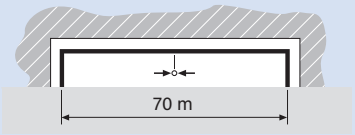
Al	Cu	In (A)	Type
63280200P	**-**	630	
63280201P	**66280200P**	800	
63280202P	**66280201P**	1000	
63280204P	**66280203P**	1250	
63280206P	**66280205P**	1600	
63280207P	**66280206P**	2000	A = 1.5 m
63390204P	**66280208P**	2500	
63390206P	**66390205P**	3200	
63390207P	**66390206P**	4000	
63390208P	**66390208P**	5000	
-	**66390209P**	6300	

Dimensions

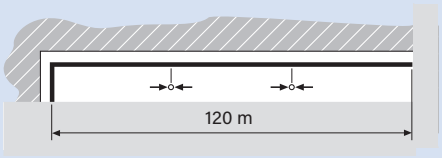
Expansion element



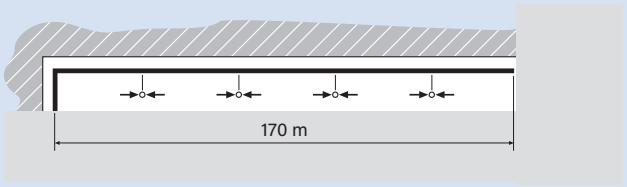
Dimension H changes with the ratings and it is specified in the Technical information



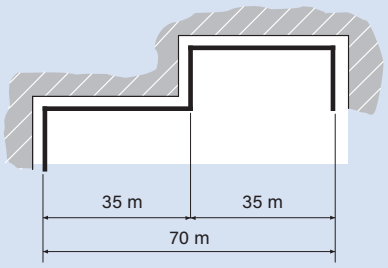
Example:
Straight section lenght 70 m = n°1 expansion element in the center of the line



Example:
Straight section lenght 120 m = n°2 expansion elements, one every 40 m

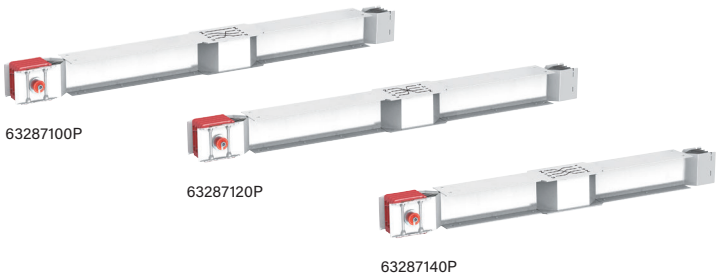


Example:
Straight section length 170 m = no. 4 expansion elements, one every 34 m



Example:
Section length 70 m. When the section is not straight, no expansion element is necessary.

STRAIGHT ELEMENTS



63287100P

63287120P

63287140P

Item			Phase balancing
Al	Cu	In (A)	
63287100P	-	630	Straight elements with phase balancing are used to reduce and balance mutual phase reactance and impedance in case of long lines. In particularly long sections (> 100 metres) it is recommended that two transposition elements are fitted (one at one third and one at two thirds of the path), to balance the system electric impedance: In this way, it will be possible to have along the installation path all the possible combination, of reciprocal positions among phases, minimising load losses (Fig.1). If it's necessary to have the same phase sequence at the start and the end, use 3 phase balancing elements (fig.2).
63287101P	66287100P	800	
63287102P	66287101P	1000	
63287104P	66287103P	1250	
63287106P	66287105P	1600	
63287107P	66287106P	2000	
63397104P	66287108P	2500	
63397106P	66397105P	3200	
63397107P	66397106P	4000	
63397108P	66397108P	5000	
-	66397109P	6300	

			Phase inversion
Al	Cu	In (A)	
63287120P	-	630	The function of this element is to completely reversed the positions of the phases and the neutral. It is normally used in connections between transformer and electric board, or in the connections between electric boards, when the starting sequence is different from the arrival sequence.
63287121P	66287120P	800	
63287122P	66287121P	1000	
63287124P	66287123P	1250	
63287126P	66287125P	1600	
63287127P	66287126P	2000	
63397124P	66287128P	2500	
63397126P	66397125P	3200	
63397127P	66397126P	4000	
63397128P	66397128P	5000	
-	66397129P	6300	

			Element with Neutral rotation
Al	Cu	In (A)	
63287140P	-	630	The straight element with Neutral rotation is used to adapt the sequence of the busbar phases to the sequence of the connections required at the ends of the connections, should these be different. In the connection between electric boards, the neutral jump is normally used, as only the neutral position is normally identified.
63287141P	66287140P	800	
63287142P	66287141P	1000	
63287144P	66287143P	1250	
63287146P	66287145P	1600	
63287147P	66287146P	2000	
63397144P	66287148P	2500	
63397146P	66397145P	3200	
63397147P	66397146P	4000	
63397148P	66397148P	5000	
-	66397149P	6300	

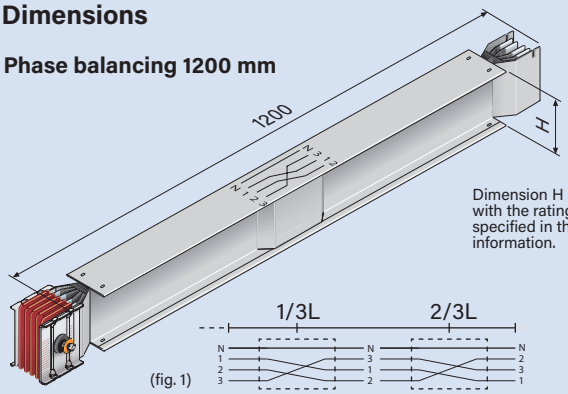
Single bar:
630A-2000A (Al)
800A-2500A (Cu)

Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

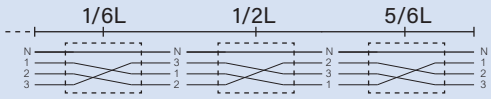
Phase balancing 1200 mm



Dimension H changes with the rating; it is specified in the technical information.

(fig. 1)

Electric diagram: 2 elements offer all the possible reciprocal positions among the phases along the line.



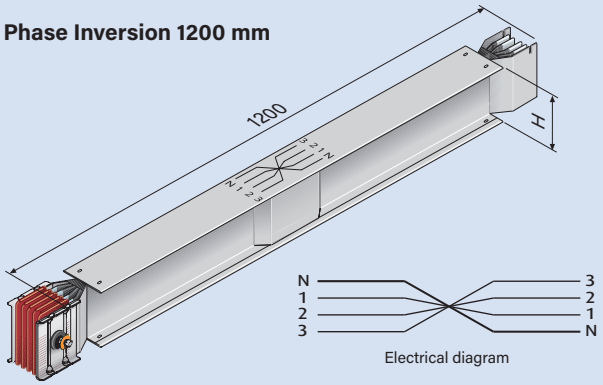
(fig. 2)

If it's necessary to have the same phase sequence at the start and the end, use 3 phase balancing elements.

In particularly long carrying sections (L> 100 meters) it is recommended to insert 2 elements always by 2: (one placed at 1/3 and one placed at 2/3 of the trunking path) to balance the electric impedance of the system.
"L" is the total lenght of the path.

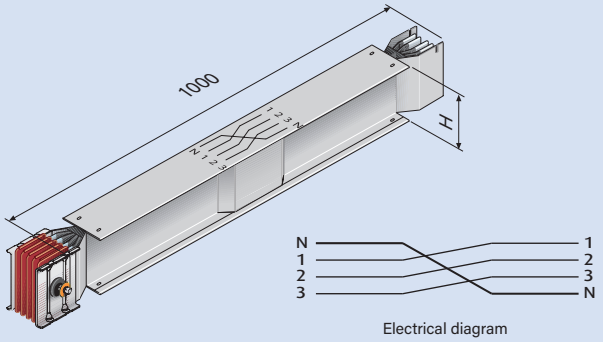
For example, in a line exceeding 300 m it is recommended that one phase transposition is fitted at 100 m, and another one at 200 m.

Phase Inversion 1200 mm



Electrical diagram

Element with neutral rotation 1000 mm



Electrical diagram

When the position of neutral of the distribution board phases is different from that of the transformer, it is possible to use an element that allows a neutral rotation only.

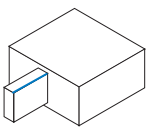
Warning: Use **phase inversion and neutral rotation elements** ONLY for transport paths, and not for derivations (not use it when the line includes straight elements with derivations, or when they are provided for tap-off boxes even if bolted on the junction)
The position of all the conductors, including the neutral, changes, and may cause serious problems on a connected load, if one is not fully aware that the phase sequence and the position of the neutral DO NOT comply with those indicated in the pre-printed labels.

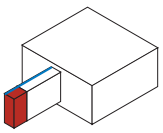
FEED UNIT

63281106P

The feed units are used at the end of the lines, when the busbar must be powered using cables. They are available in the right (without Monobloc) and left (with Monobloc fitted) version.
On request they are available with non-standard execution.
End feed units for single bar busbars are supplied with an aluminium blind back closing plate. For double bar busbar trunking systems the plates are 2. Both versions are fitted with 2 extra side steel flanges and 2 inspection steel flanges (dark grey colour). The cable is connected directly to the busbars using bolts.
For more information on board/busbar connection see the tables (Dimensions For The Box). To feed the power supply cable through the back power supply flanges it will be necessary to drill a hole in case of single bar and two holes in case of double bar. The size of the holes is 170 x 410 mm.

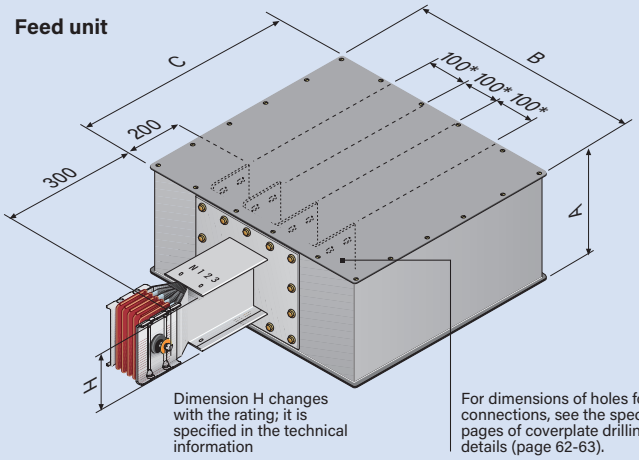
Item		Feed unit	
Al	**Cu**	In (A)	Type
63281100P	**-**	630	Right type 2
63281101P	**66281100P**	800	
63281102P	**66281101P**	1000	
63281104P	**66281103P**	1250	
63281106P	**66281105P**	1600	
63281107P	**66281106P**	2000	
63391104P	**66281108P**	2500	
63391106P	**66391105P**	3200	
63391107P	**66391106P**	4000	
63391108P	**66391108P**	5000	
-	**66391109P**	6300	
63281110P	**-**	630	Left type 1
63281111P	**66281110P**	800	
63281112P	**66281111P**	1000	
63281114P	**66281113P**	1250	
63281116P	**66281115P**	1600	
63281117P	**66281116P**	2000	
63391114P	**66281118P**	2500	
63391116P	**66391115P**	3200	
63391117P	**66391116P**	4000	
63391118P	**66391118P**	5000	
-	**66391119P**	6300	





Dimensions

Feed unit



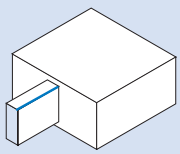
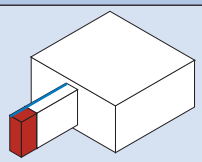
* 120 mm for 6300 A (Cu) and 5000 A (Al)

Rear cable input

Aluminium gland plate(s) for cable entry 170 x 410 mm
Single bar: 1 plate
Double bar: 2 plates

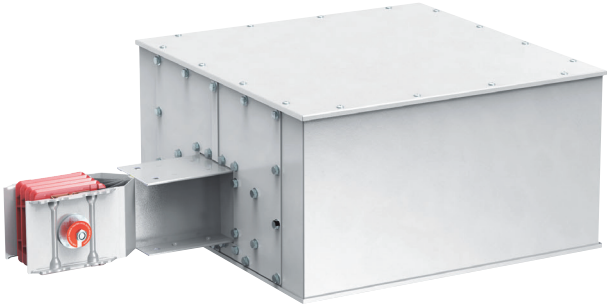
Dimensions FOR THE BOX				
Al	630A÷1250A	1600÷2000A	2500A÷4000A	
Cu	800A÷1250A	1600A÷2000A	2500÷5000A	6300A
(A) [mm]	320	320	600	815
(B) [mm]	615	615	615	615
(C) [mm]	610	810	810	810

Special dimensions (not standard) are available on request, please contact Legrand.

Type 2 (without monobloc)	Type 1 (with monobloc)
	

CONNECTIONS				
Load (A)	**The Copper (Cu) phase section is rounded up (mm^2)**	**No. of connection holes for each busbar conductor**	**No. of one-pole cables that can be connected to each phase**	
630	600	4	4x150	2x300
800				
1000				
1250	700	4	4x240	3x300
1600	850	8	4x240	3x300
2000	1100	8	5x240	4x300
2500	1400	8	6x240	5x300
3200	1700	16	8x240	6x300
4000	2100	16	9x240	7x300
5000	3000	16	14x240	10x300

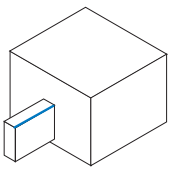
RISING MAINS FEED UNIT

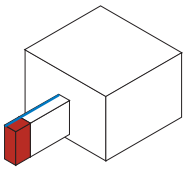


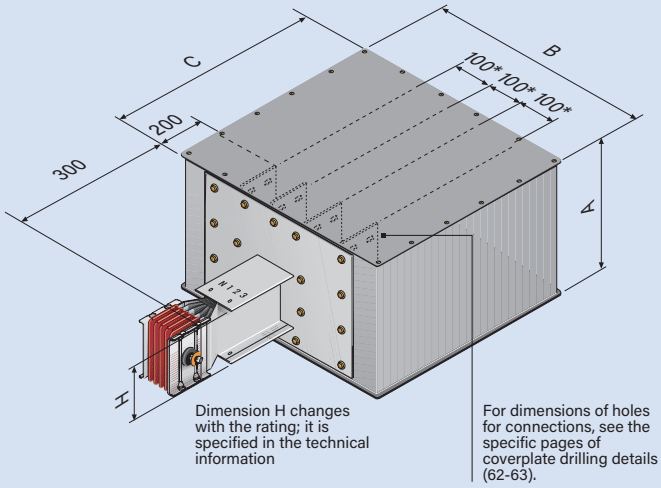
66281133P

The rising mains feed units are used at the departure of the riser mains lines, when the busbar must be placed close to the wall and powered using cables. They are available in the right (without Monobloc)and left (with Monobloc fitted) versions, and they allow the busbar to be installed 40 mm away from the wall. On request they are available with non-standard execution. End feed units for single bar busbars are supplied with an aluminium blind back closing plate. For double bar busbar trunking systems the plates are 2. Both versions are fitted with 2 extra side steel flanges and 2 inspection steel flanges (dark grey colour). The cable is connected directly to the busbars using bolts.
For more information on board/busbar connection see the tables below (Dimensions For The Box). To feed the power supply cable through the back power supply flanges it will be necessary to drill a hole in case of single bar and two holes in case of double bar. The size of the holes is 170 x 410 mm.

Item		Rising mains feed unit	
Al	**Cu**	In (A)	Type
63281120P	**-**	630	Right type 2
63281121P	**66281120P**	800	
63281122P	**66281121P**	1000	
63281124P	**66281123P**	1250	
63281126P	**66281125P**	1600	
63281127P	**66281126P**	2000	
63391124P	**66281128P**	2500	
63391126P	**66391125P**	3200	
63391127P	**66391126P**	4000	
63391128P	**66391128P**	5000	
-	**66391129P**	6300	
63281130P	**-**	630	Left type 1
63281131P	**66281130P**	800	
63281132P	**66281131P**	1000	
63281134P	**66281133P**	1250	
63281136P	**66281135P**	1600	
63281137P	**66281136P**	2000	
63391134P	**66281138P**	2500	
63391136P	**66391135P**	3200	
63391137P	**66391136P**	4000	
63391138P	**66391138P**	5000	
-	**66391139P**	6300	







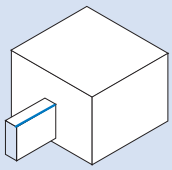
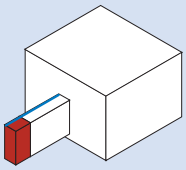
* 120 mm for 6300 A (Cu) and 5000 A (Al)

Rear cable input

Aluminium gland plate(s) for cable entry 170 x 410 mm
Single bar: 1 plate
Double bar: 2 plates

Dimensions FOR THE BOX				
Al	630A÷1250A	1600÷2000A	2500A÷4000A	
Cu	800A÷1250A	1600A÷2000A	2500÷5000A	6300A
(A) [mm]	320	320	600	815
(B) [mm]	615	615	615	615
(C) [mm]	610	810	810	810

Special dimensions (not standard) are available on request, please contact Legrand.

Type 2 (without monobloc)	Type 1 (with monobloc)
	

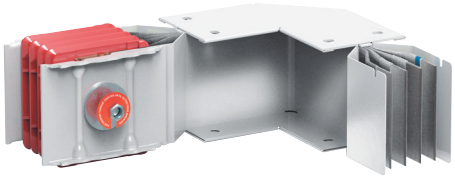
CONNECTIONS				
Load (A)	**The Copper (Cu) phase section is rounded up (mm^2)**	**No. of connection holes for each busbar conductor**	**No. of one-pole cables that can be connected to each phase**	
630	600	4	4x150	2x300
800				
1000				
1250	700	4	4x240	3x300
1600	850	8	4x240	3x300
2000	1100	8	5x240	4x300
2500	1400	8	6x240	5x300
3200	1700	16	8x240	6x300
4000	2100	16	9x240	7x300
5000	3000	16	14x240	10x300

Single bar:
630A-2000A (Al)
800A-2500A (Cu)

Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

ELBOWS



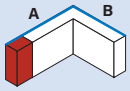
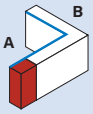
63280306P

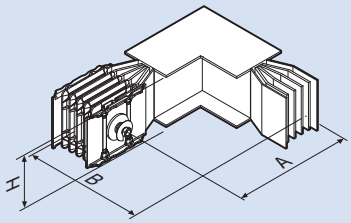
Item		Horizontal elbow		
Al	Cu	In (A)	Type	Type
63280300P	-	630	Right Type 1	Standard
63280301P	66280300P	800		
63280302P	66280301P	1000		
63280304P	66280303P	1250		
63280306P	66280305P	1600		
63280307P	66280306P	2000		
63390304P	66280308P	2500		
63390306P	66390305P	3200		
63390307P	66390306P	4000		
63390308P	66390308P	5000		
-	66390309P	6300		
63280320P	-	630		Special lengths
63280321P	66280320P	800		
63280322P	66280321P	1000		
63280324P	66280323P	1250		
63280326P	66280325P	1600		
63280327P	66280326P	2000		
63390324P	66280328P	2500		
63390326P	66390325P	3200		
63390327P	66390326P	4000		
63390328P	66390328P	5000		
-	66390329P	6300		
63280310P	-	630	Left Type 2	Standard
63280311P	66280310P	800		
63280312P	66280311P	1000		
63280314P	66280313P	1250		
63280316P	66280315P	1600		
63280317P	66280316P	2000		
63390314P	66280318P	2500		
63390316P	66390315P	3200		
63390317P	66390316P	4000		
63390318P	66390318P	5000		
-	66390319P	6300		
63280330P	-	630		Special lengths
63280331P	66280330P	800		
63280332P	66280331P	1000		
63280334P	66280333P	1250		
63280336P	66280335P	1600		
63280337P	66280336P	2000		
63390334P	66280338P	2500		
63390336P	66390335P	3200		
63390337P	66390336P	4000		
63390338P	66390338P	5000		
-	66390339P	6300		

Dimensions

Horizontal elbow

In order to define the type of horizontal elbow required, consider to place the element “edgewise” (conductors perpendicular to the ground). In this configuration
“horizontal” elbows enable a path variation parallel to the ground.
When the neutral busbar conductor faces the outside of the elbow, there will be a Right horizontal elbow (type 1)
Contrariwise, with the neutral busbar conductor facing the inside of the elbow there will be a Left horizontal elbow (type 2).

Type 1	Type 2
	



The dimensions are referred to the standard elements.
Single/double/triple bar (A+B): 300+300 mm

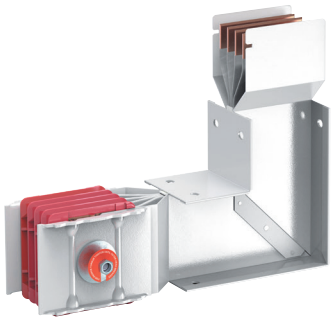
MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	250/1299*
Double bar min/MAX	
A	250/1299*
B	250/1299*
Triple bar min/MAX	
A	250/999*
B	250/999*

Dimension H changes with the rating; it is specified in the technical information

No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

* For all the non standard horizontal elbows (special), it is possible to have only one of the two sides in size exceeding 600 mm.
For example, when ordering an horizontal elbow with size A=1000 mm, the B size will have to be ≤ 600 mm

ELBOWS



66280415P

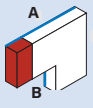
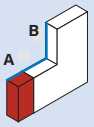
Vertical elbow

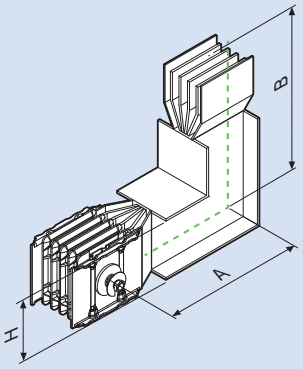
Item				
Al	Cu	In (A)	Type	Type
63280400P	-	630	Right Type 2	Standard
63280401P	66280400P	800		
63280402P	66280401P	1000		
63280404P	66280403P	1250		
63280406P	66280405P	1600		
63280407P	66280406P	2000		
63390404P	66280408P	2500		
63390406P	66390405P	3200		
63390407P	66390406P	4000		
63390408P	66390408P	5000		
-	66390409P	6300		
63280420P	-	630		Special length
63280421P	66280420P	800		
63280422P	66280421P	1000		
63280424P	66280423P	1250		
63280426P	66280425P	1600		
63280427P	66280426P	2000		
63390424P	66280428P	2500		
63390426P	66390425P	3200		
63390427P	66390426P	4000		
63390428P	66390428P	5000		
-	66390429P	6300		
63280410P	-	630	Left Type 1	Standard
63280411P	66280410P	800		
63280412P	66280411P	1000		
63280414P	66280413P	1250		
63280416P	66280415P	1600		
63280417P	66280416P	2000		
63390414P	66280418P	2500		
63390416P	66390415P	3200		
63390417P	66390416P	4000		
63390418P	66390418P	5000		
-	66390419P	6300		
63280430P	-	630		Special length
63280431P	66280430P	800		
63280432P	66280431P	1000		
63280434P	66280433P	1250		
63280436P	66280435P	1600		
63280437P	66280436P	2000		
63390434P	66280438P	2500		
63390436P	66390435P	3200		
63390437P	66390436P	4000		
63390438P	66390438P	5000		
-	66390439P	6300		

Dimensions

Vertical elbow

In order to define the type of vertical elbow, it is necessary to still place the element "edgewise" (conductors perpendicular to the ground), with the section with Monobloc facing the observer and the section without facing up. In this configuration, vertical “elbows” enable an up or down facing variation If the neutral is on the left side, there will be a left vertical elbow (Type 1).
If, on the other side, it is on the right side, there will be a right vertical elbow (Type 2).

Type 2	Type 1
	



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	250/1299*
Double bar min/MAX	
A	340/1449*
B	340/1449*
Triple bar min/MAX	
A	485/1199*
B	485/1199*

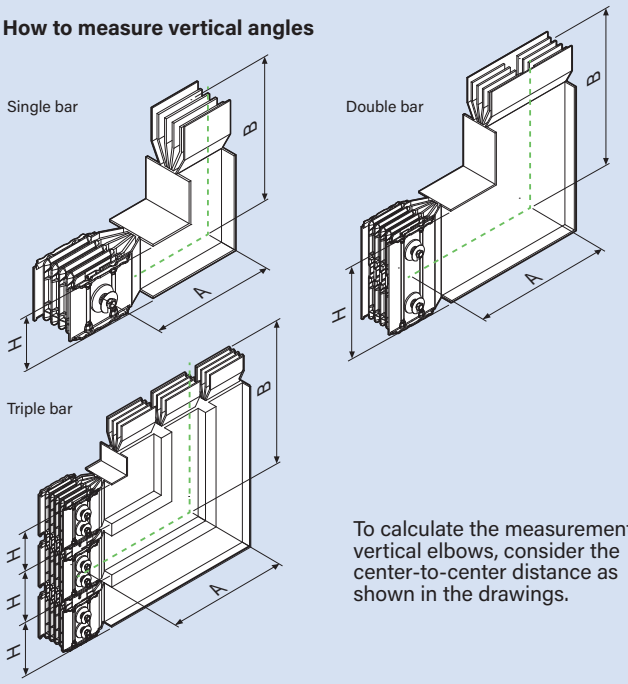
Dimension H changes with the rating;
it is specified in the technical information

The dimensions are referred to the standard elements.
Single bar (A+B) : 300+300 mm
Double bar (A+B) : 450+450 mm
Triple bar (A+B) : 500+500 mm

No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

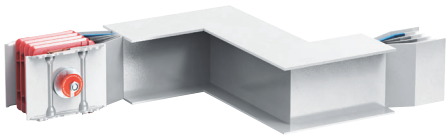
* For all the non standard vertical elbows (special), it is possible to have only one of the two sides in size exceeding 600 mm
For example, when ordering a vertical elbow with size A=1000 mm, the B size will have to be ≤ 600 mm

How to measure vertical angles

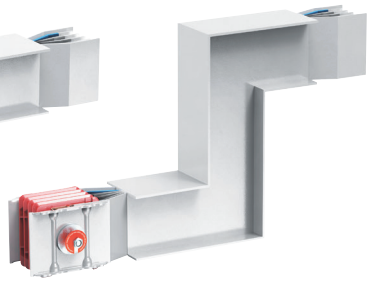


To calculate the measurements of vertical elbows, consider the center-to-center distance as shown in the drawings.

ELBOWS

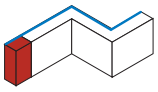


63280346P

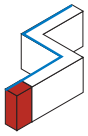


63280456P

Item		Double horizontal elbow	
Al	Cu	In (A)	Type
63280340P	-	630	
63280341P	66280340P	800	
63280342P	66280341P	1000	
63280344P	66280343P	1250	
63280346P	66280345P	1600	
63280347P	66280346P	2000	
63390344P	66280348P	2500	
63390346P	66390345P	3200	
63390347P	66390346P	4000	
63390348P	66390348P	5000	
-	66390349P	6300	
63280350P	-	630	
63280351P	66280350P	800	
63280352P	66280351P	1000	
63280354P	66280353P	1250	
63280356P	66280355P	1600	
63280357P	66280356P	2000	
63390354P	66280358P	2500	
63390356P	66390355P	3200	
63390357P	66390356P	4000	
63390358P	66390358P	5000	
-	66390359P	6300	

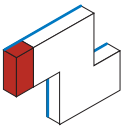


Right Type 1

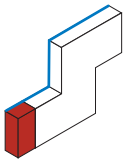


Left Type 2

		Double vertical elbow	
Al	Cu	In (A)	Type
63280440P	-	630	
63280441P	66280440P	800	
63280442P	66280441P	1000	
63280444P	66280443P	1250	
63280446P	66280445P	1600	
63280447P	66280446P	2000	
63390444P	66280448P	2500	
63390446P	66390445P	3200	
63390447P	66390446P	4000	
63390448P	66390448P	5000	
-	66390449P	6300	
63280450P	-	630	
63280451P	66280450P	800	
63280452P	66280451P	1000	
63280454P	66280453P	1250	
63280456P	66280455P	1600	
63280457P	66280456P	2000	
63390454P	66280458P	2500	
63390456P	66390455P	3200	
63390457P	66390456P	4000	
63390458P	66390458P	5000	
-	66390459P	6300	



Right Type 2



Left Type 1

Single bar:
630A-2000A (Al)
800A-2500A (Cu)

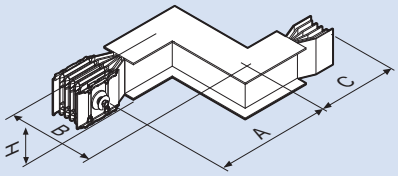
Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

Dimensions

Double horizontal elbow

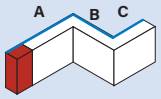
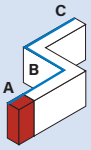
Double horizontal elbows are the union of two horizontal elbows; in order to define the type, it is enough to observe them starting from the Monobloc; if the first elbow met is left, we will have a double horizontal elbow left + right (Type 2). Contrariwise, if the first elbow met is right, we will have a double horizontal elbow right + left (Type 1).



The dimensions are referred to the standard elements.
Single/double/triple bar (A+B+C): 300+300+300 mm

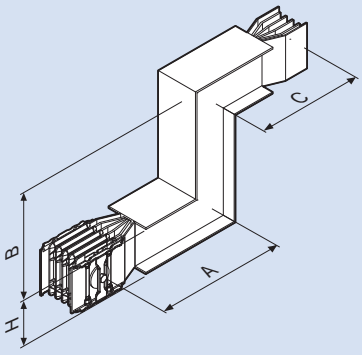
MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Double bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Triple bar min/MAX	
A	250/999*
B	50/599*
C	250/999*

Dimension H changes with the rating; it is specified in the technical information

Type 1	Type 2
	

Double vertical elbow

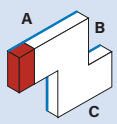
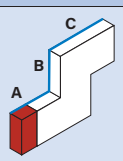
Double vertical elbows are the union of two vertical elbows; in order to define the type, it is enough to observe them starting from the Monobloc; if the first elbow met is left, we will have a double vertical elbow left + right (Type 1). Contrariwise, if the first elbow met is right, we will have a double vertical elbow right + left (Type 2).



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	50/599*
C	250/1299*
Double bar min/MAX	
A	340/1449*
B	50/899*
C	340/1449*
Triple bar min/MAX	
A	485/1199*
B	50/999*
C	485/1199*

Dimension H changes with the rating; it is specified in the technical information

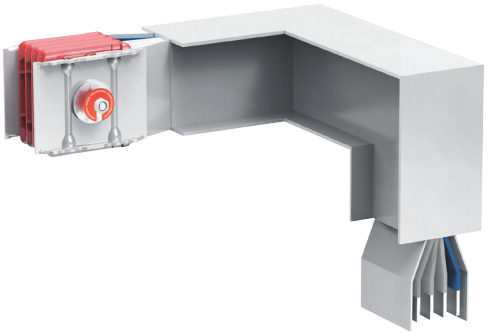
The dimensions are referred to the standard elements.
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 450+450+450 mm
Triple bar (A+B+C): 500+500+500 mm

Type 2	Type 1
	

No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

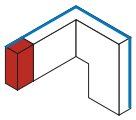
⚠ * Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310)

ELBOWS

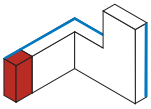


63280606P

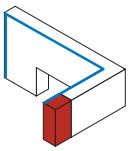
Item		Double elbow horizontal + vertical	
Al	Cu	In (A)	Type
63280600P	-	630	
63280601P	66280600P	800	
63280602P	66280601P	1000	
63280604P	66280603P	1250	
63280606P	66280605P	1600	
63280607P	66280606P	2000	
63390604P	66280608P	2500	
63390606P	66390605P	3200	
63390607P	66390606P	4000	
63390608P	66390608P	5000	
-	66390609P	6300	
63280610P	-	630	
63280611P	66280610P	800	
63280612P	66280611P	1000	
63280614P	66280613P	1250	
63280616P	66280615P	1600	
63280617P	66280616P	2000	
63390614P	66280618P	2500	
63390616P	66390615P	3200	
63390617P	66390616P	4000	
63390618P	66390618P	5000	
-	66390619P	6300	
63280620P	-	630	
63280621P	66280620P	800	
63280622P	66280621P	1000	
63280624P	66280623P	1250	
63280626P	66280625P	1600	
63280627P	66280626P	2000	
63390624P	66280628P	2500	
63390626P	66390625P	3200	
63390627P	66390626P	4000	
63390628P	66390628P	5000	
-	66390629P	6300	
63280630P	-	630	
63280631P	66280630P	800	
63280632P	66280631P	1000	
63280634P	66280633P	1250	
63280636P	66280635P	1600	
63280637P	66280636P	2000	
63390634P	66280638P	2500	
63390636P	66390635P	3200	
63390637P	66390636P	4000	
63390638P	66390638P	5000	
-	66390639P	6300	



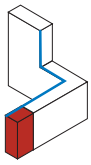
Type 1



Type 2



Type 3



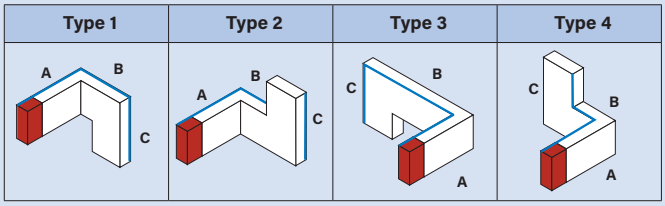
Type 4

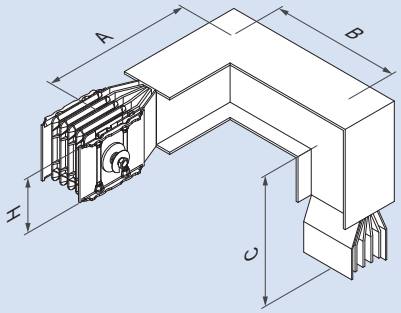
Dimensions

Double elbow horizontal + vertical

Double elbows horizontal + vertical are the union of a horizontal and a vertical elbow, placed in succession starting from the side with Monobloc.

Depending on the type of elbows, the double horizontal + vertical elbow may be of four different types:
- Double elbow Horizontal RH + Vertical RH (Type 1)
- Double elbow Horizontal RH + Vertical LH (Type 2)
- Double elbow Horizontal LH + Vertical RH (Type 3)
- Double elbow Horizontal LH + Vertical LH (Type 4)





MIN AND MAX DIMENSIONS OF SINGLE	
Single bar min/MAX	
A	250/1299*
B	150/599*
C	250/1299*
Double bar min/MAX	
A	250/1299*
B	235/899*
C	340/1449*
Triple bar min/MAX	
A	250/999*
B	380/799*
C	250/999*

The dimensions are referred to the standard elements
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 300+450+450 mm
Triple bar (A+B+C): 300+500+500 mm

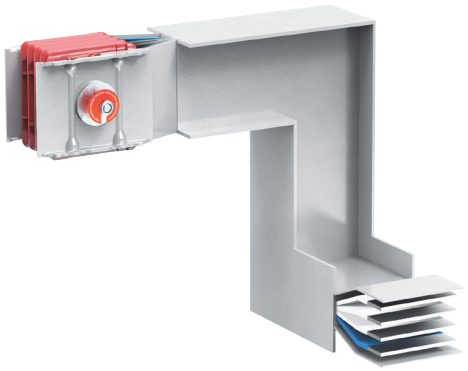
Dimension H changes with the rating; it is specified in the technical information

No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

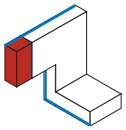
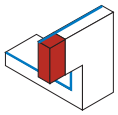
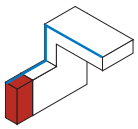
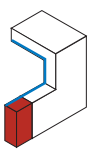
⚠ * Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310).

Note:
RH - Right
LH - Left

ELBOWS



63280506P

Item		Double elbow vertical + horizontal	
Al	Cu	In (A)	Type
63280500P	-	630	 Type 1
63280501P	66280500P	800	
63280502P	66280501P	1000	
63280504P	66280503P	1250	
63280506P	66280505P	1600	
63280507P	66280506P	2000	
63390504P	66280508P	2500	
63390506P	66390505P	3200	
63390507P	66390506P	4000	
63390508P	66390508P	5000	
-	66390509P	6300	
63280510P	-	630	 Type 2
63280511P	66280510P	800	
63280512P	66280511P	1000	
63280514P	66280513P	1250	
63280516P	66280515P	1600	
63280517P	66280516P	2000	
63390514P	66280518P	2500	
63390516P	66390515P	3200	
63390517P	66390516P	4000	
63390518P	66390518P	5000	
-	66390519P	6300	
63280520P	-	630	 Type 3
63280521P	66280520P	800	
63280522P	66280521P	1000	
63280524P	66280523P	1250	
63280526P	66280525P	1600	
63280527P	66280526P	2000	
63390524P	66280528P	2500	
63390526P	66390525P	3200	
63390527P	66390526P	4000	
63390528P	66390528P	5000	
-	66390529P	6300	
63280530P	-	630	 Type 4
63280531P	66280530P	800	
63280532P	66280531P	1000	
63280534P	66280533P	1250	
63280536P	66280535P	1600	
63280537P	66280536P	2000	
63390534P	66280538P	2500	
63390536P	66390535P	3200	
63390537P	66390536P	4000	
63390538P	66390538P	5000	
-	66390539P	6300	

Single bar:
630A-2000A (Al)
800A-2500A (Cu)

Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

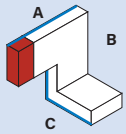
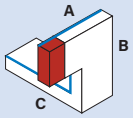
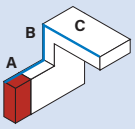
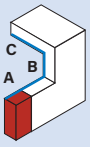
Triple bar:
5000A (Al)
6300A (Cu)

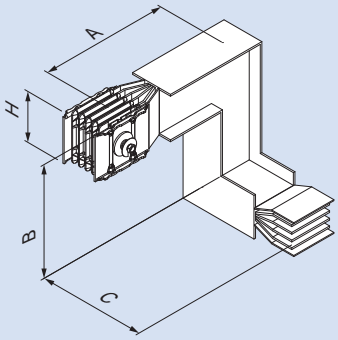
Dimensions

Double elbow vertical + horizontal

Double elbows vertical + horizontal are the union of a vertical and a horizontal elbow, placed in succession starting from the side with Monobloc.

Depending on the type of elbows, the double vertical + horizontal elbow may be of four different types:
- Double elbow vertical RH + horizontal RH (Type 1)
- Double elbow vertical RH + horizontal LH (Type 2)
- Double elbow vertical LH + horizontal RH (Type 3)
- Double elbow vertical LH + horizontal LH (Type 4)

Type 1	Type 2	Type 3	Type 4
			



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
A	250/1299*
B	150/599*
C	250/1299*
Double bar min/MAX	
A	340/1449*
B	325/899*
C	250/1299*
Triple bar min/MAX	
A	485/1199*
B	380/799*
C	250/999*

Dimension H changes with the rating; it is specified in the technical information

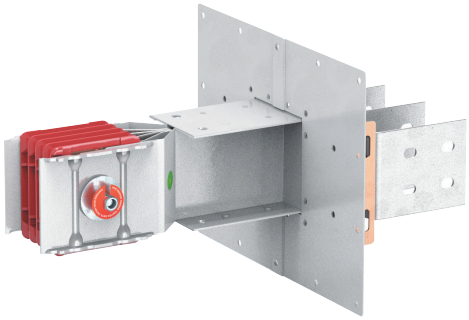
The dimensions are referred to the standard elements.
Single bar (A+B+C): 300+300+300 mm
Double bar (A+B+C): 450+450+300 mm
Triple bar (A+B+C): 500+500+300 mm

No standard elements "Special" (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

⚠ * Warning: for safety reasons on production and also to help installation phases, when one dimension (ie: A=1100) need to be pulled close to his maximum excurstion, the other two dimensions should be manteined close to the standard dimension (i.e.: B=300; C=310).

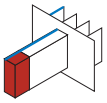
Note:
RH - Right
LH - Left

CONNECTION INTERFACES WITH EXIT BARS



63281016P

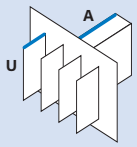
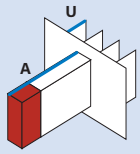
Connection interfaces with exit bars for panel boards

Item				
Al	Cu	In (A)	Type	Type
63281000P	-	630	Right Type 2	Standard
63281001P	66281000P	800		
63281002P	66281001P	1000		
63281004P	66281003P	1250		
63281006P	66281005P	1600		
63281007P	66281006P	2000		
63391004P	66281008P	2500		
63391006P	66391005P	3200		
63391007P	66391006P	4000		
63391008P	66391008P	5000		
-	66391009P	6300		
63281020P	-	630		Special
63281021P	66281020P	800		
63281022P	66281021P	1000		
63281024P	66281023P	1250		
63281026P	66281025P	1600		
63281027P	66281026P	2000		
63391024P	66281028P	2500		
63391026P	66391025P	3200		
63391027P	66391026P	4000		
63391028P	66391028P	5000		
-	66391029P	6300		
63281010P	-	630	 Left Type 1	Standard
63281011P	66281010P	800		
63281012P	66281011P	1000		
63281014P	66281013P	1250		
63281016P	66281015P	1600		
63281017P	66281016P	2000		
63391014P	66281018P	2500		
63391016P	66391015P	3200		
63391017P	66391016P	4000		
63391018P	66391018P	5000		
-	66391019P	6300		
63281030P	-	630		Special
63281031P	66281030P	800		
63281032P	66281031P	1000		
63281034P	66281033P	1250		
63281036P	66281035P	1600		
63281037P	66281036P	2000		
63391034P	66281038P	2500		
63391036P	66391035P	3200		
63391037P	66391036P	4000		
63391038P	66391038P	5000		
-	66391039P	6300		

Dimensions

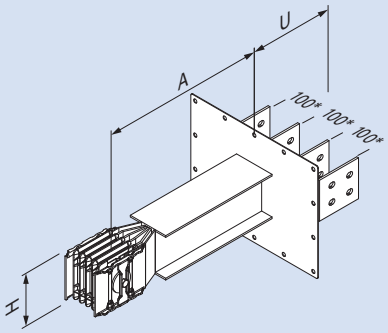
Connection interfaces with exit bars

Standard connection interfaces are used at the end of the lines to connect the busbar to boards or transformers. They are available in the right (without Monobloc) and left (with Monobloc fitted) version. The drawings below refer to the standard versions.
Different executions are available on request (e.g.: length, centre distance between bar conductors, drilling, etc.).

Standard connection interface RH (Type 2 without monoblock fitted)	Standard connection interface LH (Type 1 with monoblock fitted)
	

Note:
RH - Right
LH - Left

Standard connection interface



See on page 62-63 the drawings with all drilling details for dimensions of coverplate (1) and bars (2)

MIN AND MAX DIMENSIONS	
Single bar min/MAX	
U	150/400
A	200/1299
Double bar min/MAX	
U	150/400
A	200/1299
Triple bar min/MAX	
U	150/400
A	200/1299

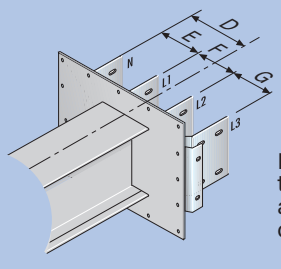
Dimension H changes with the rating; it is specified in the technical information

The dimensions are referred to the standard elements.
Single/double/triple bar (U+A): 200+300 mm

* 120 mm for 6300 A (Cu) and 5000 A (Al)

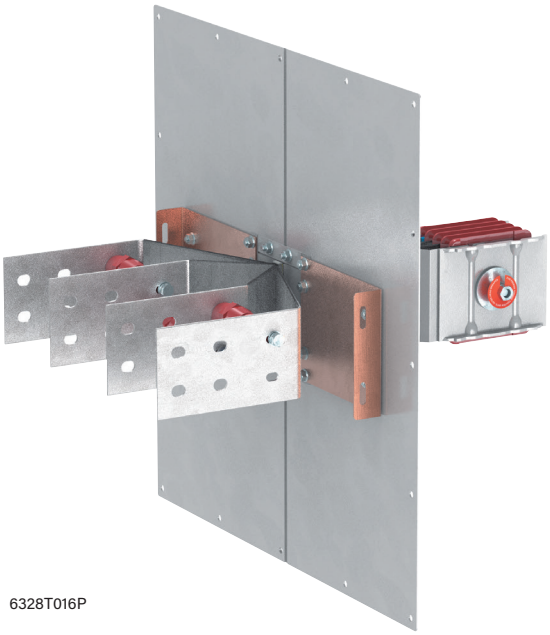
No standard elements “Special” (with measurements that are different from those show in the figure) are referred to the Min and Max dimensions specified in the table.

Special connection interface with interaxes not standard

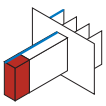


Dimensioning indications to be provided when using a non-standard centre distance

CONNECTION INTERFACES WITH EXIT BARS



6328T016P

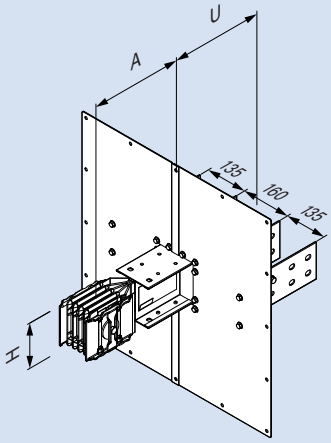
Item		Connection interfaces with exit bars for transformers*		
Al	Cu	In (A)	Type	Type
6328T000P	-	630	Right Type 2	CRT
6328T001P	6628T000P	800		
6328T002P	6628T001P	1000		
6328T004P	6628T003P	1250		
6328T006P	6628T005P	1600		
6328T007P	6628T006P	2000		
6339T004P	6628T008P	2500		
6339T006P	6639T005P	3200		
6339T007P	6639T006P	4000		
6339T008P	6639T008P	5000		
-	6639T009P	6300		
6328T010P	-	630	 Left Type 1	CRT
6328T011P	6628T010P	800		
6328T012P	6628T011P	1000		
6328T014P	6628T013P	1250		
6328T016P	6628T015P	1600		
6328T017P	6628T016P	2000		
6339T014P	6628T018P	2500		
6339T016P	6639T015P	3200		
6339T017P	6639T016P	4000		
6339T018P	6639T018P	5000		
-	6639T019P	6300		

*** cast resin, air insulated or oil filled transformers**

Dimensions

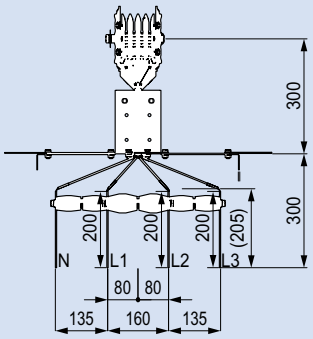
Connection interfaces with exit bars

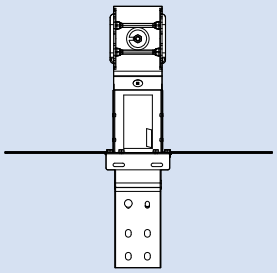
Special connection interfaces are used at the end of the lines to connect the busbar to dry transformers. They are available in the right (without Monobloc) and left (with Monobloc fitted) version. The drawings below refer to the standard versions. Different executions are available on request (e.g.: length, centre distance between bar conductors, drilling, etc.).



MIN AND MAX DIMENSIONS	
Single bar min/MAX	
U	300/400
A	200/1299
Double bar min/MAX	
U	300/400
A	200/1299
Triple bar min/MAX	
U	300/400
A	200/1299

Dimension H changes with the rating; it is specified in the technical information





Single bar:
630A-2000A (Al)
800A-2500A (Cu)

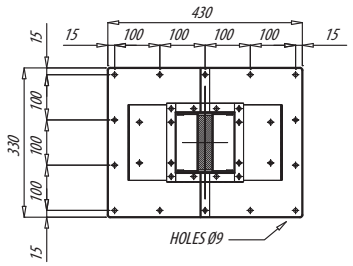
Double bar:
2500A-4000A (Al)
3200A-5000A (Cu)

Triple bar:
5000A (Al)
6300A (Cu)

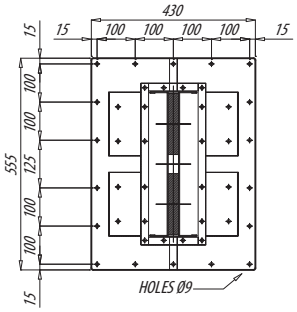
DIMENSIONS

Coverplate drilling details (1)

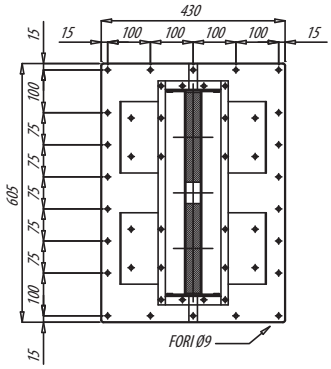
Al 630A–2000A
Cu 800A–2500A



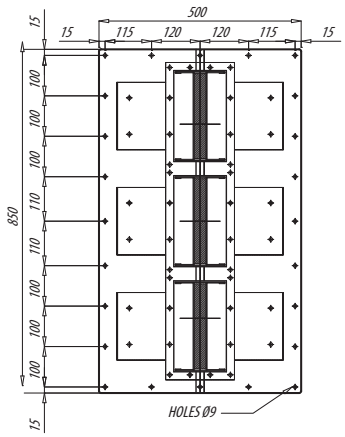
Al 2500A–3200A
Cu 3200A–4000A



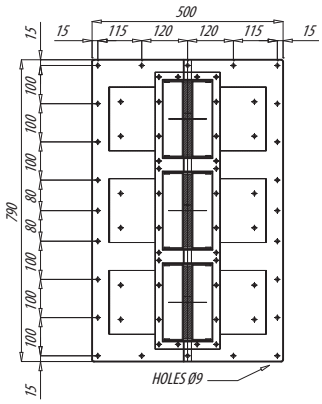
Al 4000A
Cu 5000A



Al 5000A

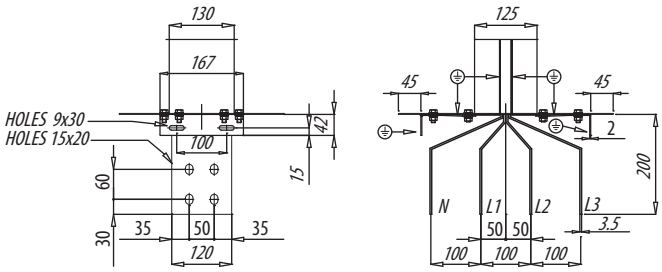


Cu 6300A

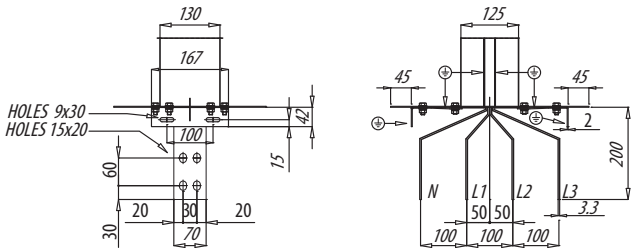


Bar drilling details (2) Side and front view

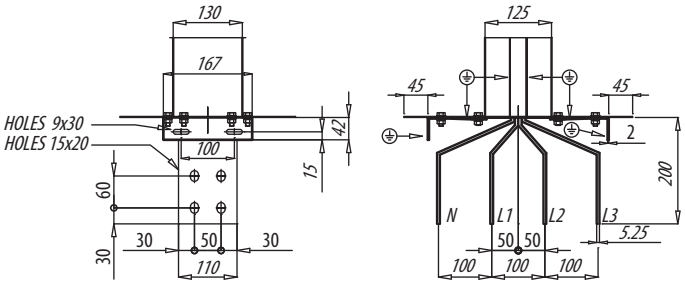
Al 630A–800A



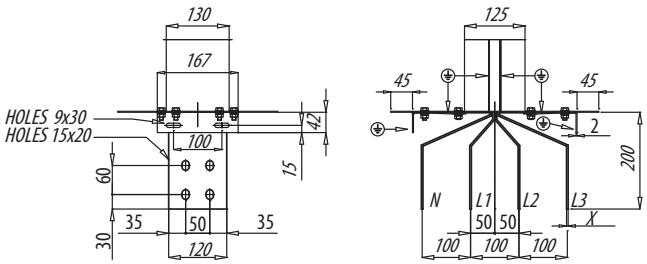
Cu 800A



Al 1000A



Al 1250A
Cu 1000A–1250A

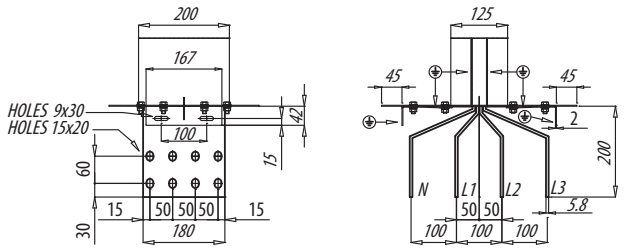


X= 6 (**Al** 1250A)
3.3 (**Cu** 1000A)
3.9 (**Cu** 1250A)

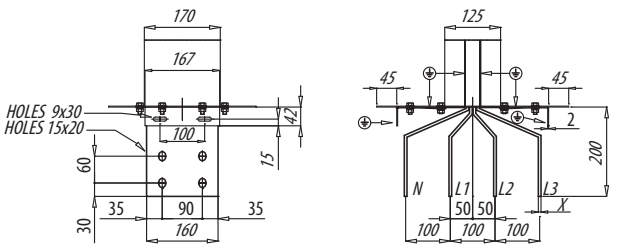
DIMENSIONS

Bar drilling details (2) Side and front view

Al 1600A

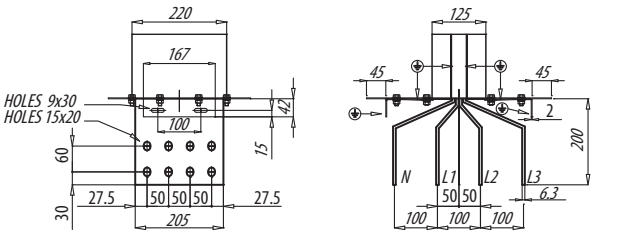


Cu 1600A–2000A

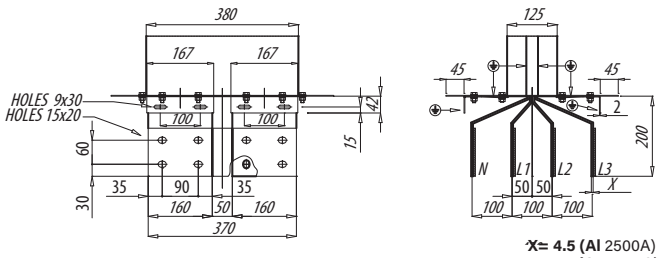


X= 3.25 (Al 1600A)
6 (Cu 2000A)

Al 2000A

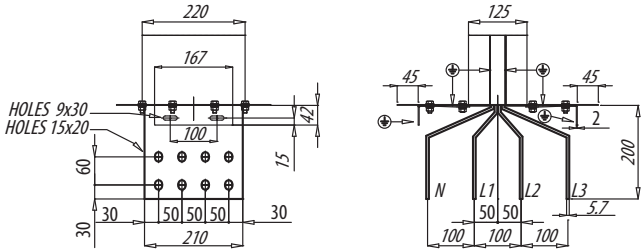


Al 2500A
Cu 3200A

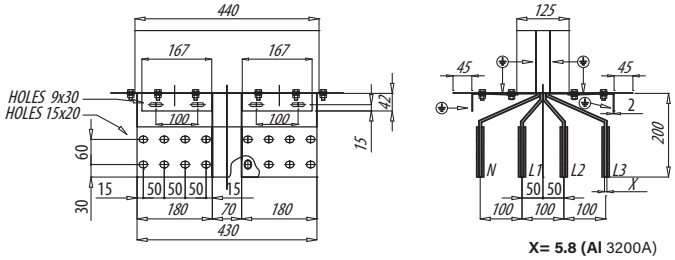


X= 4.5 (Al 2500A)
4.2 (Cu 3200A)

Cu 2500A

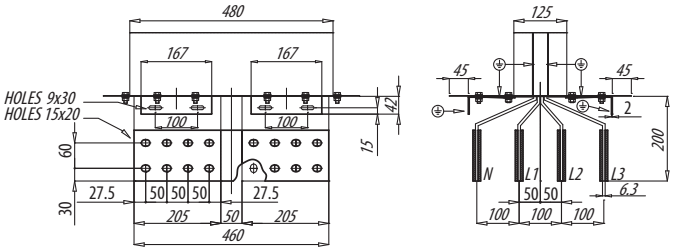


Al 3200A
Cu 4000A

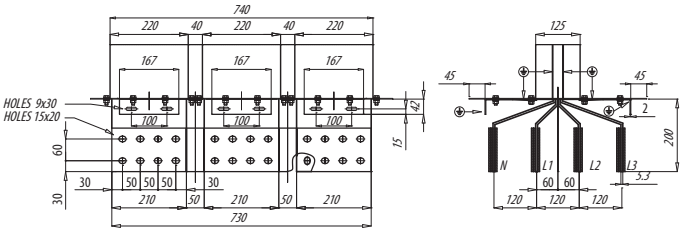


X= 5.8 (Al 3200A)
5.3 (Cu 4000A)

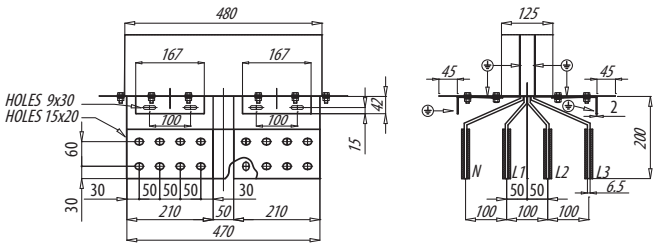
Al 4000A



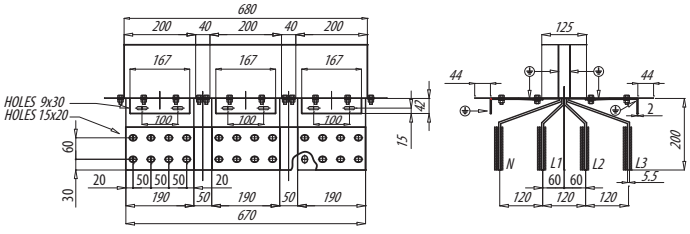
Al 5000A



Cu 5000A



Cu 6300A



TECHNICAL INFORMATION

General features

XCP-HP line is available in the standard range:
From **630A to 5000A with aluminum alloy** conductors and **from 800A to 6300A with copper conductors**
The compact dimensions of the XCP-HP enhance **its resistance to short circuit stresses**; in addition, they can reduce the impedance of the circuit by controlling the voltage drops and allow for the installation of high power electrical systems, even in extremely confined spaces.
XCP-HP is available with **a wide selection of tap-off boxes that range from 63A up to 1250A**, thus allowing you to locally protect and feed different types of loads by housing protective devices such as fuses, MCCBs and motorised switches
XCP-HP is not only in **compliance with** the harmonised **Standards CEI EN 61439-6** but also answers specifically to many clients needs for more severe conditions of use
Thus **the rated current** of Starline's busbar trunking systems is **always referred to the average ambient temperature of up to 55 °C**
The nominal range of all XCP-HP is guaranteed both for horizontal installations (flat and edgewise) and for vertical installations without derating.
XCP-HP busbar trunking systems are designed so that they can **be maintenance-free**, except for the periodic and compulsory inspections required by the Standard IEC 60364
The tightening torque inspection of the junction can be carried out by qualified personnel, even when the busbar is energized.

Structural features

The outer casing of the XCP-HP line consists of four C-ribbed section bars, bordered and riveted (thickness 1.5mm), **with excellent mechanical, electric** and heat loss efficiency. **The sheetmetal is made of galvanized steel,** treated according to UNI EN10327 and **painted with RAL7035 resins** with a **high resistance to chemical agents**
The standard degree of protection is IP55, on request IP65 (only for transport of energy); with certain accessories, it can also be installed outdoors.
The busbar conductors have a rectangular cross section with rounded corners; there are two versions:

- **Electrolytic copper ETP 99.9 UNI EN13601**
- **Aluminum alloy** treated over the entire surface with **5 galvanic processes** (copper plating + tin plating)

The insulation between bars is ensured by a **double sheath made with polyester film** (total thickness 2x0.19 mm) **class B (130°C),** (total thickness 2x0.23 mm) **class F (155°C)** thermal resistance available on request. All plastic components have a **V1 self-extinguishing degree**; they are fire retardant and comply with the glow-wire test according to standards The XCP-HP line is **Halogen Free.** In order to facilitate storage operations especially to reduce the installation time, the straight elements, trunking **components** as well as all the components of the XCP-HP line are **supplied with a monobloc pre-installed at the factory**
The junction contact is ensured by **tin plated aluminium for XCP-HP Al and copper for XCP-HP Cu for each phase**, insulated with red **class F thermosetting plastic material**.
The **monobloc** has **shearhead bolts**: after tightening the nuts with a standard wrench, the outer head will break at the correct torque value, hence giving you the certainty that the connection has been made properly so as to guarantee safety and maximum performance over time.
Finally, in order to completely verify the insulation level, every finished product undergoes an **insulation test** (phase-phase, phase-PE) at the factory with a test voltage of 3500 Vac for 1.5 seconds. The test is performed on the finished product, completely assembled.
IP55 and IP65 is intended for internal use only, for outdoor applications is needed a canopy designed by us or RCP resin IP68 busbar.

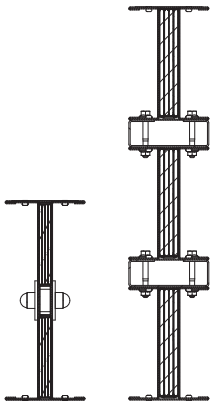
RATED CURRENT OF XCP-HP BARS (A)											
Al	630	800	1000	1250	1600	2000	2500	3200	4000	5000	
	Single bar						Double bar			Triple bar	
Cu		800	1000	1250	1600	2000	2500	3200	4000	5000	6300
	Single bar						Double bar			Triple bar	

Standard versions:

XCP-HP line with 4 conductors 3P+N+PE, 3P+PEN, 3P+FE+PE

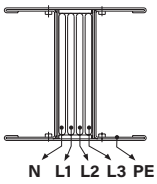
Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

Edgewise element **Flat element**



single bar double bar triple bar

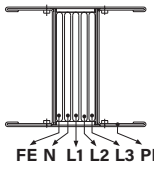
Phase sequence



XCP-HP 5 line with 5 conductors 3P+N+FE+PE

Note: For dimension H, see technical data section
PE: Protection Earth
FE: Functional Earth (Clean Earth)

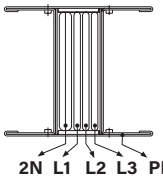
Phase sequence



XCP-HP 2N 200% neutral line 3P+2N+PE

Note: For dimension H, see technical data section
PE: Protection Earth
2N : 200% neutral

Phase sequence



XCP-HP GENERAL CORRECTION FACTOR FOR AMBIENT TEMPERATURES (KT)

XCP-HP (AL)

Daily avg Ambient temperature	-5°C	0°C	0°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
Kt factor	1,38	1,34	1,28	1,25	1,21	1,18	1,15	1,11	1,07	1,04	1	0,96	0,92	0,88	0,84

XCP-HP (CU)

Daily avg Ambient temperature	-5°C	0°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
Kt factor	1,43	1,40	1,33	1,30	1,26	1,23	1,19	1,16	1,12	1,08	1,04	1	0,96	0,92	0,87

Special versions on request

TECHNICAL DATA

XCP-HP Al (4 Conductors)

3P+N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 130	125 x 200	125 x 220	125 x 380	125 x 440	125 x 480	125 x 740
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	36	50	70	70	85	120	120	150	150
Peak current	I_{pk} [kA]	76	76	105	154	154	187	264	264	330	330
Allowable specific energy for three-phase fault	I^2t [MA^{2}s]	1296	1296	2500	4900	4900	7225	14400	14400	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the neutral bar	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,094	0,091	0,074	0,064	0,048	0,039	0,032	0,023	0,016	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,101	0,102	0,076	0,062	0,043	0,035	0,032	0,022	0,018	0,014
Phase impedance at thermal conditions	Z [mΩ/m]	0,115	0,113	0,090	0,077	0,057	0,046	0,039	0,028	0,021	0,016
Neutral resistance	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,133	0,111	0,106	0,078	0,072	0,068	0,035
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,049	0,032	0,029	0,019	0,016	0,014	0,010
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,084	0,054	0,049	0,032	0,027	0,025	0,016
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,208	0,208	0,188	0,178	0,142	0,131	0,101	0,087	0,080	0,045
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,126	0,106	0,094	0,063	0,054	0,041	0,031	0,027	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,161	0,161	0,140	0,129	0,085	0,074	0,054	0,043	0,037	0,026
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,248	0,244	0,227	0,201	0,161	0,144	0,109	0,093	0,084	0,050
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,185	0,179	0,165	0,133	0,099	0,079	0,060	0,045	0,037	0,029
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,210	0,205	0,189	0,159	0,114	0,094	0,069	0,053	0,045	0,034
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,102	0,102	0,075	0,060	0,041	0,033	0,030	0,021	0,017	0,013
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,126	0,121	0,099	0,085	0,064	0,052	0,043	0,031	0,021	0,017
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,157	0,150	0,148	0,121	0,115	0,086	0,077	0,072	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,098	0,094	0,094	0,063	0,051	0,038	0,028	0,021	0,019	0,017
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,185	0,183	0,177	0,161	0,132	0,121	0,090	0,079	0,075	0,042
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	95,4	91,9	76,2	65,6	49,0	39,7	33,5	24,0	17,1	13,4
	cosφ = 0,75	97,3	94,1	77,3	66,2	49,1	39,8	33,8	24,2	17,4	13,6
	cosφ = 0,80	98,8	95,9	78,0	66,5	49,0	39,7	34,0	24,2	17,7	13,8
	cosφ = 0,85	99,7	97,2	78,1	66,4	48,5	39,3	33,9	24,1	17,8	13,9
	cosφ = 0,90	99,7	97,7	77,6	65,5	47,5	38,5	33,5	23,8	17,8	13,8
	cosφ = 0,95	98,2	96,9	75,6	63,4	45,4	36,8	32,4	22,9	17,5	13,6
	cosφ = 1,00	87,7	88,0	65,6	53,9	37,3	30,2	27,5	19,3	15,6	12,0
Weight (PE 1)	p [kg/m]	16,0	16,0	17,8	19,3	25,4	29,4	37,7	47,3	54,3	68,6
Weight (PE 2)	p [kg/m]	19,3	19,3	21,1	22,6	30,5	35,0	46,4	57,6	65,7	85,6
Weight (PE 3)	p [kg/m]	17,1	17,1	18,9	20,3	27,1	31,2	40,5	50,7	58,0	74,1
Fire load	[kWh/m]	4,5	5,5	5,5	6,0	8,5	10,5	16,0	19,0	21,0	21,0
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	121	195	227	292	330	418	596	683	863	1042
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1 s Icw = 20 kA

Over 50°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP Al (5 Conductors - clean earth)

3P+N+PE+FE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 130	125 x 200	125 x 220	125 x 380	125 x 440	125 x 480	125 x 740
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	36	50	70	70	85	120	120	150	150
Peak current	I_{pk} [kA]	76	76	105	154	154	187	264	264	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1296	2500	4900	4900	7225	14400	14400	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the neutral bar	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,094	0,091	0,074	0,064	0,048	0,039	0,032	0,023	0,016	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,101	0,102	0,076	0,062	0,043	0,035	0,032	0,022	0,018	0,014
Phase impedance at thermal conditions	Z [mΩ/m]	0,115	0,113	0,090	0,077	0,057	0,046	0,039	0,028	0,021	0,016
Neutral resistance	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Functional Earth resistance (FE)	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Functional Earth reactance (FE)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,133	0,133	0,266	0,266	0,222	0,213	0,156	0,143	0,136	0,035
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,049	0,032	0,029	0,019	0,016	0,014	0,010
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,084	0,054	0,049	0,032	0,027	0,025	0,016
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,125	0,125	0,102	0,083	0,058	0,047	0,042	0,029	0,024	0,017
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,107	0,107	0,082	0,069	0,047	0,038	0,033	0,023	0,019	0,014
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,117	0,117	0,090	0,074	0,051	0,042	0,036	0,025	0,021	0,016
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,184	0,179	0,163	0,125	0,096	0,075	0,060	0,043	0,035	0,028
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,172	0,166	0,151	0,116	0,089	0,070	0,054	0,040	0,032	0,026
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,179	0,173	0,155	0,119	0,091	0,071	0,056	0,041	0,033	0,027
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,102	0,102	0,075	0,060	0,041	0,033	0,030	0,021	0,017	0,013
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,126	0,121	0,099	0,085	0,064	0,052	0,043	0,031	0,021	0,017
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,102	0,102	0,075	0,060	0,041	0,033	0,030	0,021	0,017	0,013
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,073	0,065	0,065	0,060	0,049	0,040	0,031	0,023	0,013	0,011
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,126	0,121	0,099	0,085	0,064	0,052	0,043	0,031	0,021	0,017
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	95,4	91,9	76,2	65,6	49,0	39,7	33,5	24,0	17,1	13,4
	cosφ = 0,75	97,3	94,1	77,3	66,2	49,1	39,8	33,8	24,2	17,4	13,6
	cosφ = 0,80	98,8	95,9	78,0	66,5	49,0	39,7	34,0	24,2	17,7	13,8
	cosφ = 0,85	99,7	97,2	78,1	66,4	48,5	39,3	33,9	24,1	17,8	13,9
	cosφ = 0,90	99,7	97,7	77,6	65,5	47,5	38,5	33,5	23,8	17,8	13,8
	cosφ = 0,95	98,2	96,9	75,6	63,4	45,4	36,8	32,4	22,9	17,5	13,6
	cosφ = 1,00	87,7	88,0	65,6	53,9	37,3	30,2	27,5	19,3	15,6	12,0
Weight (PE 1)	p [kg/m]	17,5	17,5	19,7	21,7	28,8	33,6	42,8	54,4	62,9	79,9
Weight (PE 2)	p [kg/m]	20,8	20,8	23,0	25,0	34,0	39,3	51,5	64,7	74,2	96,9
Weight (PE 3)	p [kg/m]	21,0	18,6	20,8	22,7	30,5	35,5	45,6	57,7	66,6	85,4
Fire load	[kWh/m]	5,6	6,9	6,9	7,5	10,6	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	121	195	227	292	330	418	596	683	863	1042
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1s Icw = 20 kA

Over 50°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP Al (5 Conductors - double neutral)

3P+2N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 130	125 x 200	125 x 220	125 x 380	125 x 440	125 x 480	125 x 740
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	36	50	70	70	85	120	120	150	150
Peak current	I_{pk} [kA]	76	76	105	154	154	187	264	264	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1296	2500	4900	4900	7225	14400	14400	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the neutral bar	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,094	0,091	0,074	0,064	0,048	0,039	0,032	0,023	0,016	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,101	0,102	0,076	0,062	0,043	0,035	0,032	0,022	0,018	0,014
Phase impedance at thermal conditions	Z [mΩ/m]	0,115	0,113	0,090	0,077	0,057	0,046	0,039	0,028	0,021	0,016
Neutral resistance	R_{20} [mΩ/m]	0,038	0,038	0,028	0,022	0,015	0,012	0,011	0,008	0,006	0,005
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,133	0,133	0,266	0,266	0,222	0,213	0,156	0,143	0,136	0,035
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,049	0,032	0,029	0,019	0,016	0,014	0,010
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,084	0,054	0,049	0,032	0,027	0,025	0,016
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,210	0,210	0,322	0,311	0,253	0,238	0,179	0,158	0,148	0,045
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,126	0,106	0,094	0,063	0,054	0,041	0,031	0,027	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,161	0,161	0,140	0,129	0,085	0,074	0,054	0,043	0,037	0,026
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,250	0,245	0,346	0,325	0,264	0,245	0,184	0,162	0,150	0,050
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,185	0,179	0,165	0,133	0,099	0,079	0,060	0,045	0,037	0,029
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,210	0,205	0,189	0,159	0,114	0,094	0,069	0,053	0,045	0,034
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,064	0,064	0,047	0,037	0,026	0,021	0,019	0,013	0,010	0,008
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,046	0,041	0,041	0,038	0,031	0,025	0,019	0,014	0,008	0,007
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,247	0,225	0,225	0,212	0,206	0,228	0,159	0,177	0,114	0,114
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,157	0,150	0,148	0,121	0,115	0,086	0,077	0,072	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,098	0,094	0,094	0,063	0,051	0,038	0,028	0,021	0,019	0,017
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,185	0,183	0,177	0,161	0,132	0,121	0,090	0,079	0,075	0,042
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	95,4	91,9	76,2	65,6	49,0	39,7	33,5	24,0	17,1	13,4
	cosφ = 0,75	97,3	94,1	77,3	66,2	49,1	39,8	33,8	24,2	17,4	13,6
	cosφ = 0,80	98,8	95,9	78,0	66,5	49,0	39,7	34,0	24,2	17,7	13,8
	cosφ = 0,85	99,7	97,2	78,1	66,4	48,5	39,3	33,9	24,1	17,8	13,9
	cosφ = 0,90	99,7	97,7	77,6	65,5	47,5	38,5	33,5	23,8	17,8	13,8
	cosφ = 0,95	98,2	96,9	75,6	63,4	45,4	36,8	32,4	22,9	17,5	13,6
	cosφ = 1,00	87,7	88,0	65,6	53,9	37,3	30,2	27,5	19,3	15,6	12,0
Weight (PE 1)	p [kg/m]	17,5	17,5	19,7	21,7	28,8	33,6	42,8	54,4	62,9	79,9
Weight (PE 2)	p [kg/m]	20,8	20,8	23,0	25,0	34,0	39,3	51,5	64,7	74,2	96,9
Weight (PE 3)	p [kg/m]	21,0	18,6	20,8	22,7	30,5	35,5	45,6	57,7	66,6	85,4
Fire load	[kWh/m]	5,6	6,9	6,9	7,5	10,6	13,1	20,0	23,8	26,3	27,3
Degree of protection	IP	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*	55 /65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	121	195	227	292	330	418	596	683	863	1042
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1 s Icw = 20 kA

Over 50°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP Al (3 Conductors)

3P+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**630**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 130	125 x 200	125 x 220	125 x 380	125 x 440	125 x 480	125 x 740
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	36	50	70	70	85	120	120	150	150
Peak current	I_{pk} [kA]	76	76	105	154	154	187	264	264	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	1296	2500	4900	4900	7225	14400	14400	22500	22500
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	22	22	30	42	42	51	72	72	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	45	63	88	88	112	158	158	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,077	0,056	0,045	0,031	0,025	0,022	0,015	0,012	0,010
Phase reactance (50hz)	X [mΩ/m]	0,055	0,049	0,049	0,045	0,037	0,030	0,023	0,017	0,010	0,008
Phase impedance	Z [mΩ/m]	0,094	0,091	0,074	0,064	0,048	0,039	0,032	0,023	0,016	0,013
Phase resistance at thermal conditions	R [mΩ/m]	0,101	0,102	0,076	0,062	0,043	0,035	0,032	0,022	0,018	0,014
Phase impedance at thermal conditions	Z [mΩ/m]	0,115	0,113	0,090	0,077	0,057	0,046	0,039	0,028	0,021	0,016
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,133	0,111	0,106	0,078	0,072	0,068	0,035
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,049	0,032	0,029	0,019	0,016	0,014	0,010
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,084	0,054	0,049	0,032	0,027	0,025	0,016
Reactance of the protective bar	X_{PE} [mΩ/m]	0,080	0,078	0,078	0,048	0,039	0,028	0,020	0,015	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,208	0,208	0,188	0,178	0,142	0,131	0,101	0,087	0,080	0,045
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,126	0,106	0,094	0,063	0,054	0,041	0,031	0,027	0,019
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,161	0,161	0,140	0,129	0,085	0,074	0,054	0,043	0,037	0,026
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,14	0,13	0,13	0,09	0,08	0,06	0,04	0,03	0,03	0,02
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,248	0,244	0,227	0,201	0,161	0,144	0,109	0,093	0,084	0,050
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,185	0,179	0,165	0,133	0,099	0,079	0,060	0,045	0,037	0,029
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,210	0,205	0,189	0,159	0,114	0,094	0,069	0,053	0,045	0,034
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,157	0,150	0,148	0,121	0,115	0,086	0,077	0,072	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,098	0,094	0,094	0,063	0,051	0,038	0,028	0,021	0,019	0,017
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,185	0,183	0,177	0,161	0,132	0,121	0,090	0,079	0,075	0,042
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	95,4	91,9	76,2	65,6	49,0	39,7	33,5	24,0	17,1	13,4
	cosφ = 0,75	97,3	94,1	77,3	66,2	49,1	39,8	33,8	24,2	17,4	13,6
	cosφ = 0,80	98,8	95,9	78,0	66,5	49,0	39,7	34,0	24,2	17,7	13,8
	cosφ = 0,85	99,7	97,2	78,1	66,4	48,5	39,3	33,9	24,1	17,8	13,9
	cosφ = 0,90	99,7	97,7	77,6	65,5	47,5	38,5	33,5	23,8	17,8	13,8
	cosφ = 0,95	98,2	96,9	75,6	63,4	45,4	36,8	32,4	22,9	17,5	13,6
	cosφ = 1,00	87,7	88,0	65,6	53,9	37,3	30,2	27,5	19,3	15,6	12,0
Weight (PE 1)	p [kg/m]	14,5	14,5	15,8	16,9	22,0	25,1	32,6	40,2	45,8	57,3
Weight (PE 2)	p [kg/m]	17,8	17,8	19,1	20,2	27,1	30,8	41,3	50,5	57,1	74,3
Weight (PE 3)	p [kg/m]	15,5	15,5	16,9	18,0	23,6	27,0	35,4	43,6	49,5	62,9
Fire load	[kWh/m]	3,4	4,1	4,1	4,5	6,4	7,9	12,0	14,3	15,8	14,8
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	121	195	227	292	330	418	596	683	863	1042
Ambient temperature min/MAX (daily average)**	[°C]	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50	-5/+50

* IP65 available under request for feeder lines
** Class F available under request
*** Icw value at 0,5 s. At 1s Icw = 20 kA

Over 50°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP CU (4 Conductors)

3P+N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 170	125 x 170	125 x 220	125 x 380	125 x 440	125 x 480	125 x 680
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	50	70	70	85	120	120	150	150	150
Peak current	I_{pk} [kA]	75,6	105	154	154	187	264	264	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	2500	4900	4900	7225	14400	14400	22500	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the neutral bar	Ipk [kA]	45,4	63	88	88	112	158	158	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	45,4	63	88	88	112	158	158	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Phase reactance (50hz)	X [mΩ/m]	0,038	0,025	0,023	0,019	0,014	0,010	0,007	0,006	0,005	0,004
Phase impedance	Z [mΩ/m]	0,086	0,051	0,044	0,039	0,023	0,018	0,015	0,011	0,008	0,007
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,055	0,048	0,044	0,024	0,019	0,017	0,012	0,009	0,008
Phase impedance at thermal conditions	Z [mΩ/m]	0,107	0,060	0,053	0,048	0,028	0,022	0,019	0,014	0,010	0,009
Neutral resistance	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,119	0,106	0,078	0,072	0,068	0,037
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,038	0,014	0,019	0,016	0,014	0,011
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,064	0,025	0,032	0,025	0,023	0,018
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,209	0,176	0,170	0,153	0,137	0,121	0,091	0,081	0,074	0,043
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,094	0,087	0,072	0,056	0,029	0,032	0,025	0,021	0,016
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,16	0,13	0,12	0,10	0,08	0,04	0,05	0,03	0,03	0,02
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,092	0,079	0,077	0,063	0,058	0,042	0,029	0,023	0,021	0,018
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,228	0,193	0,186	0,165	0,149	0,128	0,096	0,084	0,077	0,046
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,156	0,123	0,116	0,095	0,081	0,051	0,043	0,034	0,030	0,024
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,185	0,151	0,144	0,116	0,101	0,058	0,054	0,042	0,036	0,030
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,103	0,060	0,050	0,045	0,025	0,020	0,018	0,012	0,009	0,008
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,051	0,033	0,031	0,025	0,019	0,013	0,009	0,008	0,007	0,005
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,114	0,068	0,059	0,052	0,031	0,024	0,020	0,015	0,011	0,009
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,147	0,144	0,130	0,125	0,111	0,083	0,075	0,070	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,067	0,062	0,062	0,050	0,049	0,035	0,024	0,019	0,018	0,015
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	84,2	48,9	43,2	38,5	23,3	17,8	14,8	11,1	8,3	7,1
	cosφ = 0,75	86,8	50,1	44,2	39,6	23,7	18,2	15,2	11,4	8,5	7,2
	cosφ = 0,80	89,1	51,1	45,0	40,5	24,0	18,5	15,6	11,6	8,6	7,3
	cosφ = 0,85	91,0	51,9	45,6	41,2	24,1	18,7	15,9	11,8	8,6	7,4
	cosφ = 0,90	92,3	52,4	45,9	41,6	24,1	18,8	16,1	11,8	8,6	7,4
	cosφ = 0,95	92,6	52,1	45,5	41,5	23,6	18,5	16,1	11,7	8,5	7,3
	cosφ = 1,00	86,7	47,7	41,3	38,3	20,9	16,6	14,9	10,6	7,5	6,6
Weight (PE 1)	p [kg/m]	21,2	26,9	29,6	33,5	50,4	62,2	74,2	97,9	130,3	162,9
Weight (PE 2)	p [kg/m]	24,5	30,2	32,9	37,8	54,8	73,6	83,0	108,2	141,6	178,4
Weight (PE 3)	p [kg/m]	22,3	28,0	30,7	34,9	51,8	65,9	77,1	101,5	134,2	168,0
Fire load	[kWh/m]	4,5	5,5	5,5	8	8,2	10,5	16	19	21	22
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	192	165	224	339	289	360	529	588	648	901
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 55°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP CU (5 Conductors - clean earth)

3P+N+PE+FE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 170	125 x 170	125 x 220	125 x 380	125 x 440	125 x 480	125 x 680
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	50	70	70	85	120	120	150	150	150
Peak current	I_{pk} [kA]	76	105	154	154	187	264	264	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	2500	4900	4900	7225	14400	14400	22500	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the neutral bar	I_{pk} [kA]	45	63	88	88	112	158	158	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	63	88	88	112	158	158	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Phase reactance (50hz)	X [mΩ/m]	0,038	0,025	0,023	0,019	0,014	0,010	0,007	0,006	0,005	0,004
Phase impedance	Z [mΩ/m]	0,086	0,051	0,044	0,039	0,023	0,018	0,015	0,011	0,008	0,007
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,055	0,048	0,044	0,024	0,019	0,017	0,012	0,009	0,008
Phase impedance at thermal conditions	Z [mΩ/m]	0,107	0,060	0,053	0,048	0,028	0,022	0,019	0,014	0,010	0,009
Neutral resistance	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Functional Earth resistance (FE)	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Functional Earth reactance (FE)	X [mΩ/m]	0,038	0,025	0,023	0,019	0,014	0,010	0,007	0,006	0,005	0,004
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,122	0,108	0,078	0,072	0,068	0,037
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,038	0,014	0,019	0,016	0,014	0,011
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,064	0,025	0,032	0,025	0,023	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,126	0,078	0,067	0,060	0,035	0,028	0,024	0,018	0,012	0,011
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,107	0,068	0,059	0,052	0,031	0,022	0,021	0,015	0,011	0,009
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,12	0,07	0,06	0,06	0,03	0,02	0,02	0,02	0,01	0,01
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,092	0,079	0,077	0,063	0,058	0,042	0,029	0,023	0,021	0,018
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,156	0,111	0,102	0,087	0,067	0,050	0,038	0,029	0,024	0,021
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,141	0,104	0,097	0,082	0,066	0,047	0,036	0,028	0,024	0,020
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,149	0,108	0,100	0,084	0,067	0,048	0,037	0,028	0,024	0,021
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,103	0,060	0,050	0,045	0,025	0,020	0,018	0,012	0,009	0,008
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,051	0,033	0,031	0,025	0,019	0,013	0,009	0,008	0,007	0,005
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,114	0,068	0,059	0,052	0,031	0,024	0,020	0,015	0,011	0,009
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,103	0,060	0,050	0,045	0,025	0,020	0,018	0,012	0,009	0,008
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,051	0,033	0,031	0,025	0,019	0,013	0,009	0,008	0,007	0,005
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,1	0,1	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	84,2	48,9	43,2	38,5	23,3	17,8	14,8	11,1	8,3	7,1
	cosφ = 0,75	86,8	50,1	44,2	39,6	23,7	18,2	15,2	11,4	8,5	7,2
	cosφ = 0,80	89,1	51,1	45,0	40,5	24,0	18,5	15,6	11,6	8,6	7,3
	cosφ = 0,85	91,0	51,9	45,6	41,2	24,1	18,7	15,9	11,8	8,6	7,4
	cosφ = 0,90	92,3	52,4	45,9	41,6	24,1	18,8	16,1	11,8	8,6	7,4
	cosφ = 0,95	92,6	52,1	45,5	41,5	23,6	18,5	16,1	11,7	8,5	7,3
	cosφ = 1,00	86,7	47,7	41,3	38,3	20,9	16,6	14,9	10,6	7,5	6,6
Weight (PE 1)	p [kg/m]	23,8	31,1	34,5	39,0	59,9	74,3	88,2	117,3	157,4	189,7
Weight (PE 2)	p [kg/m]	27,2	34,5	37,8	43,4	64,3	85,6	96,9	127,6	168,8	205,1
Weight (PE 3)	p [kg/m]	24,9	32,2	35,5	40,4	61,3	78,0	91,1	120,8	161,4	193,9
Fire load	[kWh/m]	5,625	6,875	6,875	10	10,25	13,125	20	23,75	26,25	27,25
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	192	165	224	339	289	360	529	588	648	901
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 55°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

XCP-HP CU (5 Conductors - double neutral)

3P+2N+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 170	125 x 170	125 x 220	125 x 380	125 x 440	125 x 480	125 x 680
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	50	70	70	85	120	120	150	150	150
Peak current	I_{pk} [kA]	76	105	154	154	187	264	264	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	2500	4900	4900	7225	14400	14400	22500	22500	22500
Rated short-time current of the neutral bar (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the neutral bar	I_{pk} [kA]	45	63	88	88	112	158	158	198	198	198
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	63	88	88	112	158	158	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Phase reactance (50hz)	X [mΩ/m]	0,038	0,025	0,023	0,019	0,014	0,010	0,007	0,006	0,005	0,004
Phase impedance	Z [mΩ/m]	0,086	0,051	0,044	0,039	0,023	0,018	0,015	0,011	0,008	0,007
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,055	0,048	0,044	0,024	0,019	0,017	0,012	0,009	0,008
Phase impedance at thermal conditions	Z [mΩ/m]	0,107	0,060	0,053	0,048	0,028	0,022	0,019	0,014	0,010	0,009
Neutral resistance	R_{20} [mΩ/m]	0,038	0,022	0,019	0,017	0,009	0,007	0,007	0,005	0,003	0,003
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,132	0,132	0,132	0,119	0,122	0,108	0,078	0,072	0,068	0,037
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,038	0,014	0,019	0,016	0,014	0,011
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,064	0,025	0,032	0,025	0,023	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,209	0,176	0,170	0,153	0,140	0,123	0,091	0,081	0,075	0,043
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,094	0,087	0,072	0,056	0,029	0,032	0,025	0,021	0,016
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,16	0,13	0,12	0,10	0,08	0,04	0,05	0,03	0,03	0,03
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,092	0,079	0,077	0,063	0,058	0,042	0,029	0,023	0,021	0,018
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,228	0,193	0,186	0,165	0,152	0,130	0,096	0,084	0,078	0,047
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,156	0,123	0,116	0,095	0,081	0,051	0,043	0,034	0,030	0,024
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,185	0,151	0,144	0,116	0,101	0,058	0,054	0,042	0,036	0,032
Zero-sequence short-circuit average resistance phase - N	R_o [mΩ/m]	0,064	0,037	0,032	0,028	0,015	0,012	0,011	0,008	0,005	0,005
Zero-sequence short-circuit average reactance phase - N	X_o [mΩ/m]	0,032	0,021	0,019	0,016	0,012	0,008	0,006	0,005	0,004	0,003
Zero-sequence short-circuit average impedance phase - N	Z_o [mΩ/m]	0,072	0,043	0,037	0,032	0,019	0,015	0,012	0,009	0,007	0,006
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,147	0,144	0,130	0,125	0,111	0,083	0,075	0,070	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,067	0,062	0,062	0,050	0,049	0,035	0,024	0,019	0,018	0,015
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	84,2	48,9	43,2	38,5	23,3	17,8	14,8	11,1	8,3	7,1
	cosφ = 0,75	86,8	50,1	44,2	39,6	23,7	18,2	15,2	11,4	8,5	7,2
	cosφ = 0,80	89,1	51,1	45,0	40,5	24,0	18,5	15,6	11,6	8,6	7,3
	cosφ = 0,85	91,0	51,9	45,6	41,2	24,1	18,7	15,9	11,8	8,6	7,4
	cosφ = 0,90	92,3	52,4	45,9	41,6	24,1	18,8	16,1	11,8	8,6	7,4
	cosφ = 0,95	92,6	52,1	45,5	41,5	23,6	18,5	16,1	11,7	8,5	7,3
	cosφ = 1,00	86,7	47,7	41,3	38,3	20,9	16,6	14,9	10,6	7,5	6,6
Weight (PE 1)	p [kg/m]	23,8	31,1	34,5	39,0	59,9	74,3	88,2	117,3	157,4	189,7
Weight (PE 2)	p [kg/m]	27,2	34,5	37,8	43,4	64,3	85,6	96,9	127,6	168,8	205,1
Weight (PE 3)	p [kg/m]	24,9	32,2	35,5	40,4	61,3	78,0	91,1	120,8	161,4	193,9
Fire load	[kWh/m]	5,625	6,875	6,875	10	10,25	13,125	20	23,75	26,25	27,25
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	192	165	224	339	289	360	529	588	648	901
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 55°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.

TECHNICAL DATA

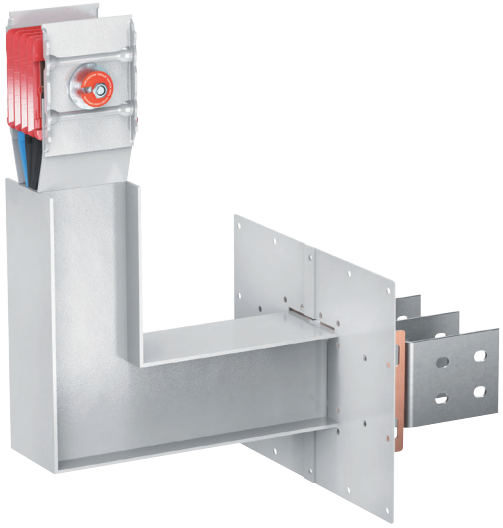
XCP-HP CU (3 Conductors)

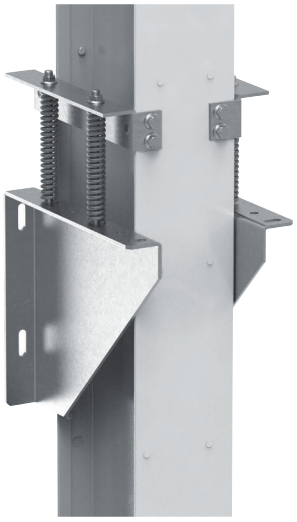
3P+PE		SINGLE BAR						DOUBLE BAR			TRIPLE BAR
Rated current	**In [A]**	**800**	**1000**	**1250**	**1600**	**2000**	**2500**	**3200**	**4000**	**5000**	**6300**
Overall dimension of the busbars	L x H [mm]	125 x 130	125 x 130	125 x 130	125 x 170	125 x 170	125 x 220	125 x 380	125 x 440	125 x 480	125 x 680
Rated operational voltage	Ue [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage	Ui [V]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency	f [Hz]	50	50	50	50	50	50	50	50	50	50
Rated short-time current (1 s)	I_{CW} [kA]$_{rms}$	36	50	70	70	85	120	120	150	150	150
Peak current	I_{pk} [kA]	76	105	154	154	187	264	264	330	330	330
Allowable specific energy for three-phase fault	I^2t [MA^2s]	1296	2500	4900	4900	7225	14400	14400	22500	22500	22500
Rated short-time current of the protective circuit (1 s)	I_{CW} [kA]$_{rms}$	21,6	30	42	42	51	72	72	90	90	90
Peak current of the protective circuit	I_{pk} [kA]	45	63	88	88	112	158	158	198	198	198
Phase resistance at 20°C	R_{20} [mΩ/m]	0,077	0,045	0,038	0,034	0,018	0,015	0,013	0,009	0,006	0,006
Phase reactance (50hz)	X [mΩ/m]	0,038	0,025	0,023	0,019	0,014	0,010	0,007	0,006	0,005	0,004
Phase impedance	Z [mΩ/m]	0,086	0,051	0,044	0,039	0,023	0,018	0,015	0,011	0,008	0,007
Phase resistance at thermal conditions	R [mΩ/m]	0,100	0,055	0,048	0,044	0,024	0,019	0,017	0,012	0,009	0,008
Phase impedance at thermal conditions	Z [mΩ/m]	0,107	0,060	0,053	0,048	0,028	0,022	0,019	0,014	0,010	0,009
Resistance of the protective bar (PE 1)	R_{PE} [mΩ/m]	0,130	0,130	0,130	0,118	0,110	0,089	0,078	0,071	0,067	0,040
Resistance of the protective bar (PE 2)	R_{PE} [mΩ/m]	0,049	0,049	0,049	0,038	0,038	0,014	0,019	0,016	0,014	0,011
Resistance of the protective bar (PE 3)	R_{PE} [mΩ/m]	0,084	0,084	0,084	0,064	0,064	0,025	0,032	0,025	0,023	0,021
Reactance of the protective bar	X_{PE} [mΩ/m]	0,054	0,054	0,054	0,044	0,044	0,032	0,022	0,017	0,016	0,014
Resistance of the fault loop (PE 1)	R_o [mΩ/m]	0,206	0,174	0,167	0,152	0,128	0,104	0,091	0,080	0,074	0,045
Resistance of the fault loop (PE 2)	R_o [mΩ/m]	0,126	0,094	0,087	0,072	0,056	0,029	0,032	0,025	0,021	0,016
Resistance of the fault loop (PE 3)	R_o [mΩ/m]	0,16	0,13	0,12	0,10	0,08	0,04	0,05	0,03	0,03	0,03
Reactance of the fault loop (50hz)	X_o [mΩ/m]	0,092	0,079	0,077	0,063	0,058	0,042	0,029	0,023	0,021	0,018
Impedance of the fault loop (PE 1)	Z_o [mΩ/m]	0,226	0,191	0,184	0,164	0,141	0,112	0,095	0,083	0,077	0,049
Impedance of the fault loop (PE 2)	Z_o [mΩ/m]	0,156	0,123	0,116	0,095	0,081	0,051	0,043	0,034	0,030	0,024
Impedance of the fault loop (PE 3)	Z_o [mΩ/m]	0,185	0,151	0,144	0,116	0,101	0,058	0,054	0,042	0,036	0,032
Zero-sequence short-circuit average resistance phase - PE	R_o [mΩ/m]	0,157	0,147	0,144	0,130	0,125	0,111	0,083	0,075	0,070	0,039
Zero-sequence short-circuit average reactance phase - PE	X_o [mΩ/m]	0,067	0,062	0,062	0,050	0,049	0,035	0,024	0,019	0,018	0,015
Zero-sequence short-circuit average impedance phase - PE	Z_o [mΩ/m]	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Voltage drop with distribuited load ΔV [V/(m*A)]10^{-6}	cosφ = 0,70	84,2	48,9	43,2	38,5	23,3	17,8	14,8	11,1	8,3	7,1
	cosφ = 0,75	86,8	50,1	44,2	39,6	23,7	18,2	15,2	11,4	8,5	7,2
	cosφ = 0,80	89,1	51,1	45,0	40,5	24,0	18,5	15,6	11,6	8,6	7,3
	cosφ = 0,85	91,0	51,9	45,6	41,2	24,1	18,7	15,9	11,8	8,6	7,4
	cosφ= 0,90	92,3	52,4	45,9	41,6	24,1	18,8	16,1	11,8	8,6	7,4
	cosφ = 0,95	92,6	52,1	45,5	41,5	23,6	18,5	16,1	11,7	8,5	7,3
	cosφ = 1,00	86,7	47,7	41,3	38,3	20,9	16,6	14,9	10,6	7,5	6,6
Weight (PE 1)	p [kg/m]	18,7	22,9	24,9	28,0	41,6	52,2	60,3	78,6	103,2	126,2
Weight (PE 2)	p [kg/m]	22,0	26,2	28,2	32,4	45,9	63,5	69,0	88,9	114,5	141,6
Weight (PE 3)	p [kg/m]	19,7	23,9	25,9	29,5	43,0	55,8	63,1	82,2	107,1	130,5
Fire load	[kWh/m]	3,375	4,125	4,125	6	6,15	7,875	12	14,25	15,75	16,75
Degree of protection	IP	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*	55/65*
Insulation material thermal resistance class		B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**	B/F**
Losses for the Joule effect at nominal current	P [W/m]	192	165	224	339	289	360	529	588	648	901
Ambient temperature min/MAX (daily average)**	[°C]	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50	-5/50

* IP65 available under request for feeder lines
** Class F available under request

Over 55°C it will be necessary to derate the busbar and for ambient temperatures under -5°C contact the tecnical support.

The data on this page refer to the 50 Hz frequency. For 60 Hz, please contact Starline.





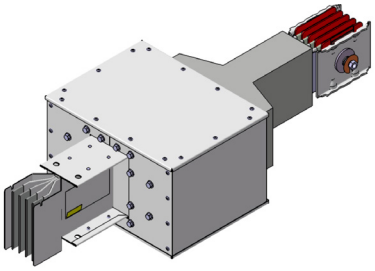
ACCESSORIES

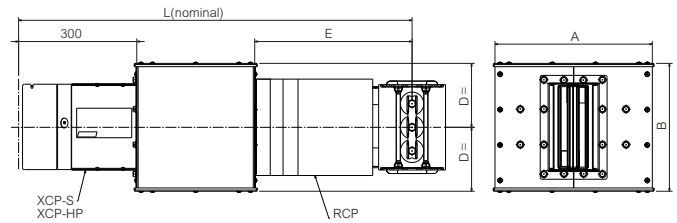
Universal Accessories

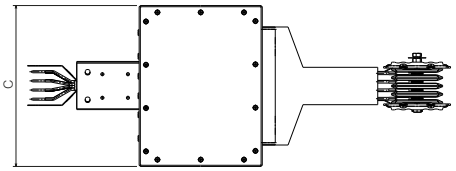
Suitable for both XCP-S and XCP-HP

A range of accessories common to both product lines, allow you to complete and customise the path of busbar, according to the design requirements.

ADAPTER ELEMENT (IP68-IP65) AND OTHER ELEMENTS OF THE RANGE



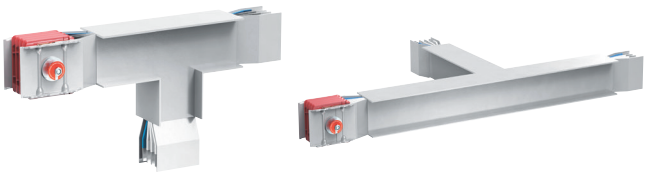




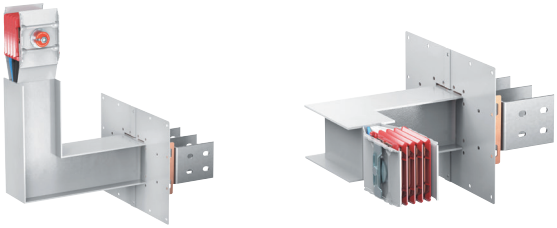
XCP-S 3C - 4C - 5C							
In (A)		DIMENSIONS (mm)					
AL	CU	L	A	B	C	D	E
630–1000	800–1250	1000	400	210	310	105	400
1250		1000	400	250	310	125	400
1600	1600–2000	1000	400	280	310	140	400
2000		1000	400	325	310	162.5	400
	2500	1000	400	380	310	190	400
2500	3200	1000	400	460	310	230	400
3200	4000	1000	400	520	310	260	400
4000	5000	1000	400	560	310	280	400
5000	6300	1250	820	670	460	335	500

XCP-HP 3C - 4C - 5C							
In (A)		DIMENSIONS (mm)					
AL	CU	L	A	B	C	D	E
630–1000	800–1250	1000	400	210	310	105	400
1250		1000	400	210	310	125	400
1600		1000	400	280	310	140	400
	1600–2000	1000	400	250	310	125	400
2000		1000	400	325	310	162.5	400
	2500	1000	400	280	310	140	400
2500	3200	1000	400	460	310	230	400
3200	4000	1000	400	520	310	260	400
4000	5000	1000	400	560	310	280	400
5000	6300	1250	820	820	460	410	500

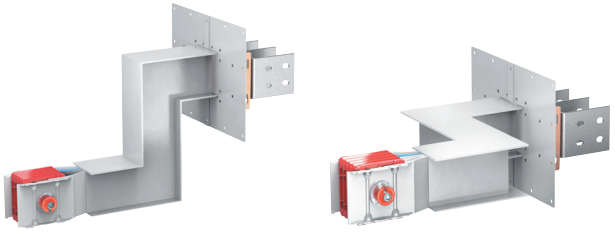
XCP includes other elements that allow you to modify the path of the busbar according to the design requirements.



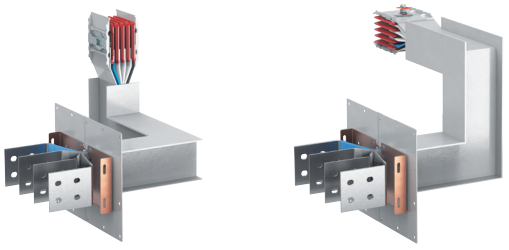
T elements



Connection interfaces with exit bars + elbow



Connection interfaces with exit bars + double elbow



Note: for more information about the accessories on this page, please contact Starline.

BRACKETS

65202001

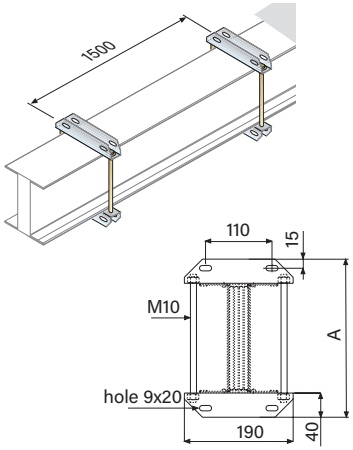
The brackets enable sturdy installation of the busbar to the system support structures.
The recommended installation distance between brackets is 1.5 metres
Starline offers suitable bracket solutions certified for any type of installation, even in the most difficult environments:
- installations subjected to strong vibrations;
- installation in seismic environments

Item		Suspension Brackets	
Al	Cu	In (A)	Type
65202001	**-**	630	
65202001	**65202001**	800-1000	
65202002	**65202001**	1250	
65202003	**65202002**	1600	edgewise
65202004	**65202003**	2000	
65222002	**65222001**	2500	
65222003	**65222002**	3200	
65222004	**65222003**	4000	
65222005	**65222004**	5000	
-	**65222005**	6300	
65202001	**-**	630	
65202001	**65202001**	800-1000	
65202013	**65202001**	1250	flat wise
65202013	**65202013**	1600-2000	
65202112	**65202111**	2500	
65202113	**65202112**	3200	
65202114	**65202113**	4000	
65202115	**65202114**	5000	
-	**65202115**	6300	

Dimensions

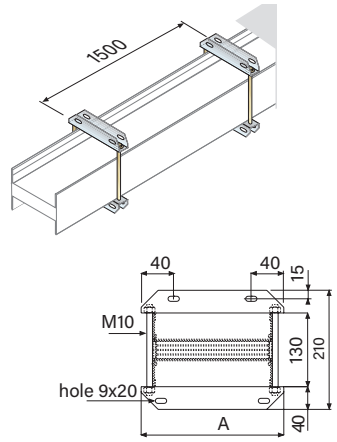
Suspension bracket

Edgewise installation



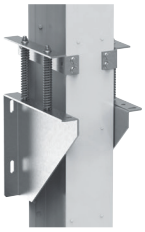
Range	A (mm)			
	XCP-S		XCP-HP	
	Al	Cu	Al	Cu
630	210	–	210	–
800	210	210	210	210
1000	210	210	210	210
1250	250	210	210	210
1600	280	250	280	250
2000	300	280	300	250
2500	460	380	460	300
3200	520	460	520	460
4000	560	520	560	520
5000	670	560	820	560
6300	–	670	–	760

Flat installation



Range	A (mm)	
	Al	Cu
630	190	–
800	190	190
1000	190	190
1250	315	190
1600	315	315
2000	315	315
2500	430	430
3200	490	430
4000	530	490
5000	640	530
6300	–	640

BRACKETS

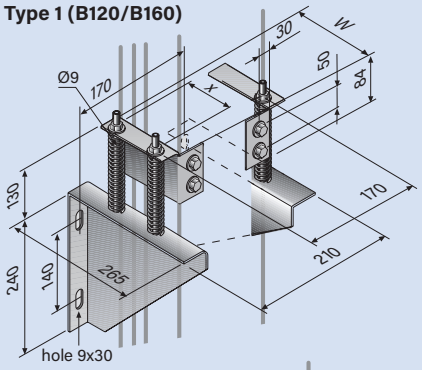


65213711

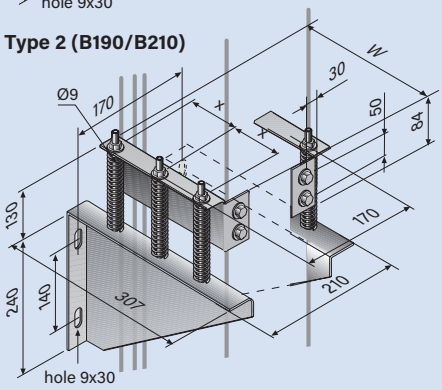
Item		Brackets for vertical elements		
Al	Cu	In (A)	Type	
65213711	-	630	With bracket and springs	
65213711	65213711	800-1000		
65213712	65213711	1250		
65213713	65213712	1600		
65213714	65213713	2000		A
65213742	65213741	2500		
65213743	65213742	3200		
65213744	65213743	4000		
65213745	65213744	5000		
-	65213745	6300		
65213721	-	630	With bracket	
65213721	65213721	800-1000		
65213722	65213721	1250		
65213723	65213722	1600		
65213724	65213723	2000		B
65213752	65213751	2500		
65213753	65213752	3200		
65213754	65213753	4000		
65213755	65213754	5000		
-	65213755	6300		
65213701	-	630	With springs	
65213701	65213701	800-1000		
65213702	65213701	1250		
65213703	65213702	1600		
65213704	65213703	2000		C
65213732	65213731	2500		
65213733	65213732	3200		
65213734	65213733	4000		
65213735	65213734	5000		
-	65213735	6300		
65213761	-	630	Bracket only	
65213761	65213761	800-1000		
65213762	65213761	1250		
65213763	65213762	1600		
65213764	65213763	2000		D
65213772	65213771	2500		
65213773	65213772	3200		
65213774	65213773	4000		
65213775	65213774	5000		
-	65213775	6300		
-	-	630-2000	Naval applications	
65213782	65213781	2500		
65213783	65213782	3200		
65213784	65213783	4000		E
65213785	65213784	5000		
-	65213785	6300		
-	-	630-2000	* Anti-seismic bracket	
65213792	65213791	2500		
65213793	65213792	3200		
65213794	65213793	4000		F
65213795	65213794	5000		
-	65213795	6300		

Dimensions

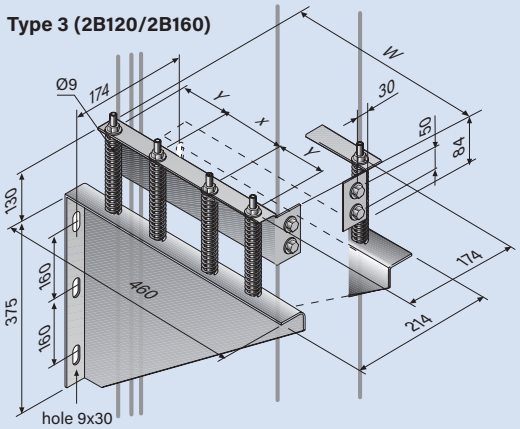
Type 1 (B120/B160)



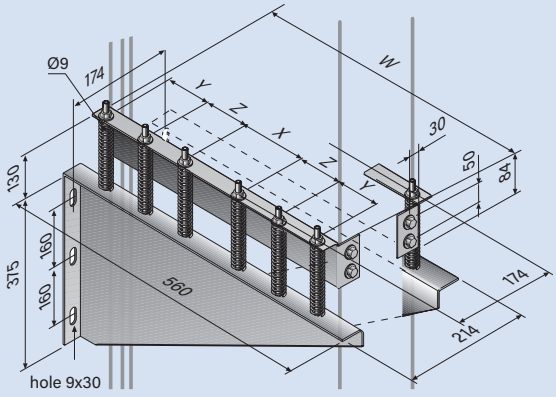
Type 2 (B190/B210)



Type 3 (2B120/2B160)



Type 4 (2B190/2B210/3B160)



X, Y, Z AND W DIMENSIONS OF THE BRACKETS									
	Type 1 B120 4 springs	Type 1 B160 4 springs	Type 2 B190 6 springs	Type 2 B210 6 springs	Type 3 2B120 8 springs	Type 3 2B160 8 springs	Type 4 2B190 12 springs	Type 4 2B210 12 springs	Type 4 3B160 12 springs
Al	630-1000 A	1250 A	1600 A	2000 A	-	2500 A	3200 A	4000 A	5000 A
Cu	800-1250 A	1600 A	2000 A	-	2500 A	3200 A	4000 A	5000 A	6300 A
W [mm]	130	170	200	220	300	380	440	480	590
x [mm]	90	120	80	90	80	110	80	80	120
y [mm]	-	-	-	-	90	115	80	90	120
z [mm]	-	-	-	-	-	-	80	90	90

*For more technical details, please contact Starline

FIXING INDICATION - BRACKETS

Technical information

For vertical path **sections of less than 2 m** the use of standard suspension brackets is sufficient.

1- Horizontal installation fixing

Fixing recommended: 1 bracket every 1.5 metres.

2- Fixing for vertical installation (rising mains)

In case of rising mains, in addition to the standard brackets it will also be necessary to use other screw fixed brackets to prevent sliding of the busbar. Thanks to pre-loaded springs, these brackets absorb the forces pressing on the busbar and direct any expansion in a precise direction They therefore operate as a limitation, and support the traction and compression forces of the busbar trunking system.

- **Section line between 2 and 4 m**

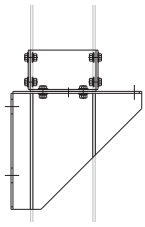
In the lowest point **Type B** vertical bracket if secured **to the wall**, or **Type D** if secured **to the floor** + one edgewise installation **standard bracket**

- **Section line of over 4 m**

In the lowest point **Type A** vertical bracket if secured **to the wall**, or **Type C** if secured **to the floor** + one edgewise installation **standard bracket** every metre and a half of the path + **one Type A or C** bracket based on the tables on the following page.

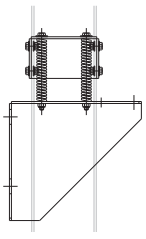
3- Fixing for installation in seismic environments in horizontal

Fit 1 bracket every metre and a half of the busbar.
Every 2 anti-seismic brackets with bracket (Type B), use one standard bracket.



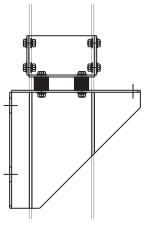
4- Fixing for installation in seismic environments in vertical (section lengths > 2 m)

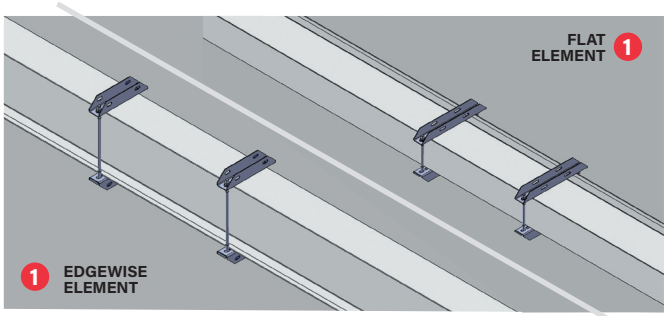
Fit 1 bracket every metre and a half of the busbar.
Every 2 anti-seismic brackets with bracket (Type B) use one bracket with bracket and spring (Type A).

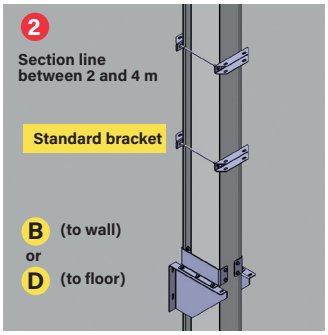


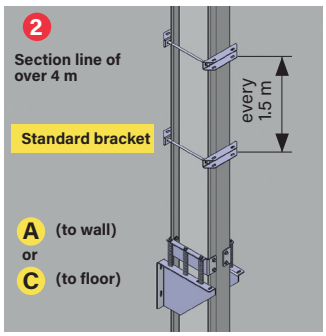
5- Fixing for naval installation

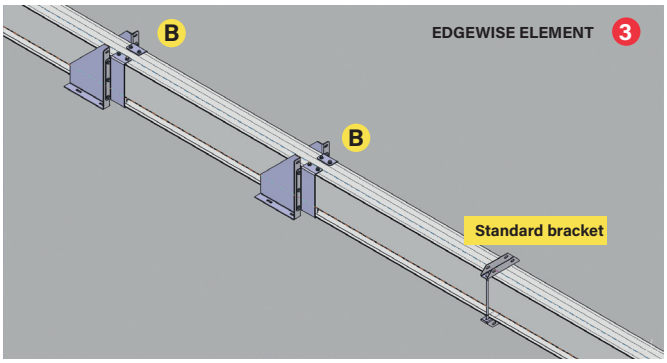
For naval installations always use a type E bracket every metre and a half of the busbar.

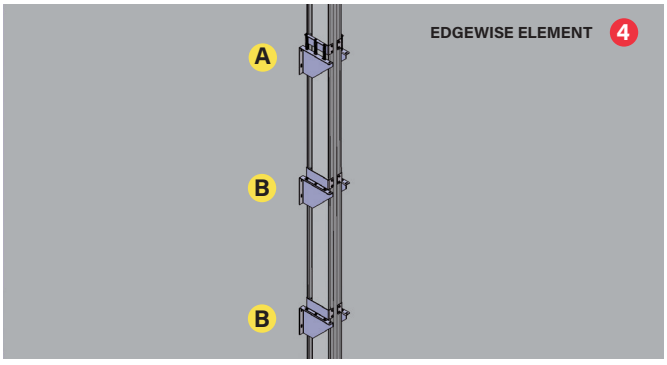


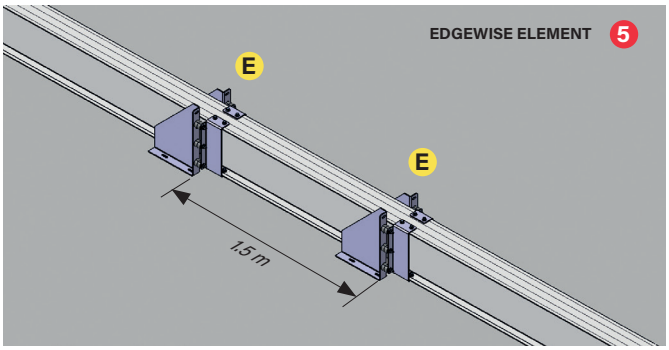












For more installation details, please refer to the installation instructions.

OPERATING INSTRUCTIONS ON HOW TO DESIGN RISER MAINS

1) The RH rising main feed unit (without monobloc) are used at the departure of the riser mains lines, allow the busbar to be installed just 40 mm away from the wall.
In order to position the tap-off boxes correctly as shown in the figure, the neutral conductor of the riser main must be on the left side of the element

2) The tap-off boxes can be installed in the tap-off outlets (Plug-in type) and on the junction of elements (Bolt-on type)
The cables come out from bottom part of the tap-off boxes

3) Use elements with tap-off outlets where necessary, distribute the power using plug-in boxes

4) Use EI120 fire barrier kit for each compartment floor, where specifically requested.
Note: with aluminum conductors fire barrier is 630 mm long and 1000 mm long where copper

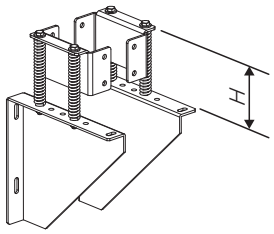
5) At the end of the riser mains, position the IP55 end cover

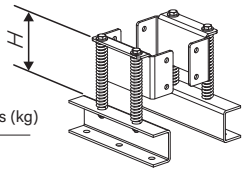
Maximum hanging distance with springs (Dmax):

	XCP-S				XCP-HP			
	Al		Cu		Al		Cu	
In (A)	D max	n° of springs	D max	n° of springs	D max	n° of springs	D max	n° of springs
630	11	4	-	-	10	4	-	-
800	10	4	9	4	10	4	9	4
1000	10	4	8	4	10	4	7	4
1250	9	4	7	4	9	4	7	4
1600	10	6	6	4	7	4	6	4
2000	9	6	6	6	9	6	6	6
2500	12	8	9	8	11	8	5	6
3200	11	12	7	8	11	12	6	8
4000	10	12	7	12	10	12	6	12
5000	8	12	5	12	8	12	5	12
6300	-	-	4	12	-	-	4	12

For 5C version, multiply Dmax by 0.9 (XCP-S) or 0.85 (XCP-HP).
For 3C version, multiply Dmax by 1.1 for both product lines.

Spring preload calculation (H):





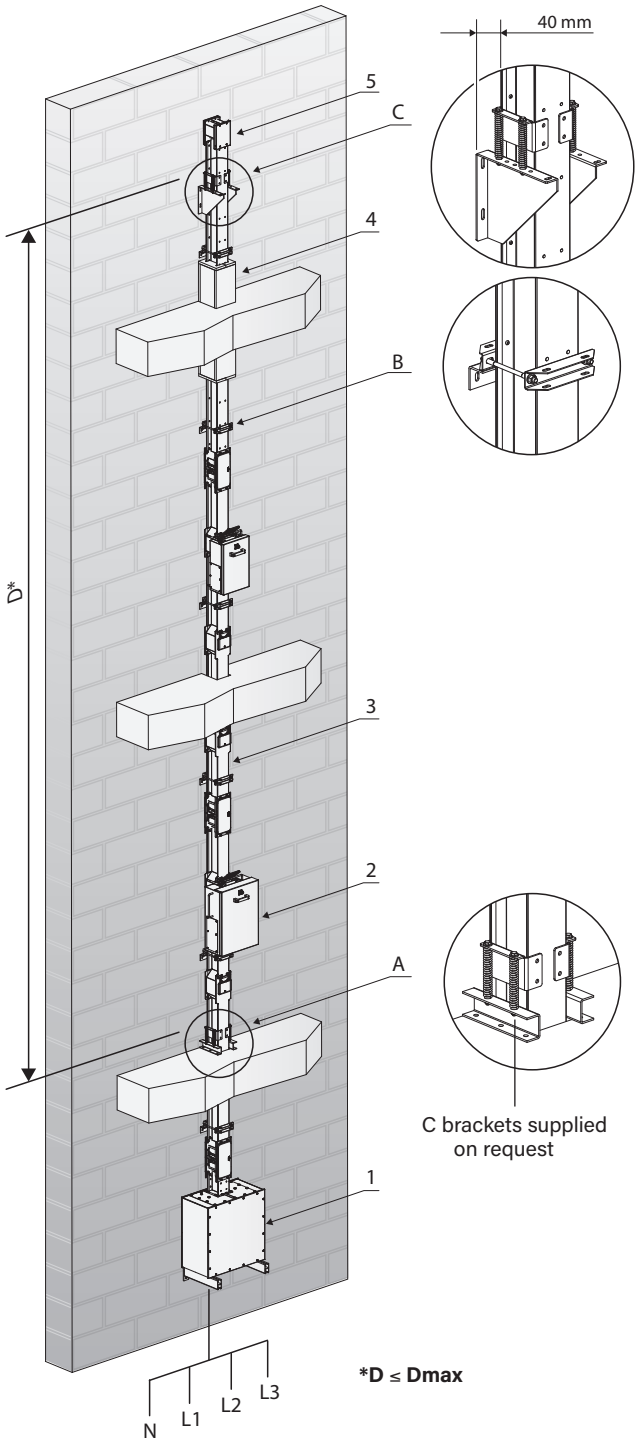
$$W = \frac{\text{Busway } \frac{(Kg)}{m} \times D\ (m) + \text{total weight of devices } (kg)}{\text{Number of springs}}$$

$$H = 130 - \frac{W}{3}$$

Preload calculation example H

Busway type: 5C - Al (Pe1)
In (A): 2000
Dmax (m): 7x0.9 = 6.3
D (m): 6
Busway (Kg/m): 29.6
Weight box 1 (Kg): 18
Weight box 2 (Kg): 12

$$W = \frac{29.6 \times 6 + (18 + 12)}{6} = 34.6 \text{ kg} \qquad H = 130 - \frac{34.6}{3} = 118.5 \text{ mm}$$

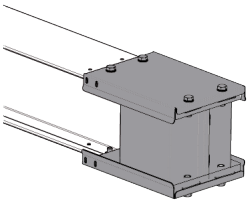


A) Floor hanger: use one or more of this suspension brackets, according to the weight of the whole riser mains (including the boxes).
For risers that are shorter than 4 meters, fix to the base with type D brackets (see pag. 76), when longer, use a type C suspension brackets (see pag. 76) respecting the maximum distances (Dmax) indicated in the tables.

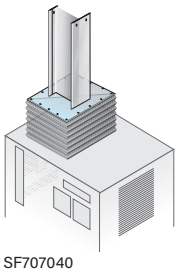
B) Standard hanger: use this type of suspension bracket to hang the busbar every 1,5 metres of riser mains.

C) Wall hanger: use one or more of this suspension brackets, according to the weight of the whole riser mains (including the boxes).
For risers that are shorter than 4 meters, fix to the base with type B brackets (see pag. 76), when longer, use a type A suspension brackets (see pag. 76) respecting the maximum distances (Dmax) indicated in the tables.

ACCESSORIES



65283101P



SF707040

Item				
XCP-S		XCP-HP		
Al	Cu	Al	Cu	In (A)
67283101P	-	67283101P	-	630
67283101P	67283101P	67283101P	67283101P	800
67283101P	67283101P	67283101P	67283101P	1000
67283102P	67283101P	67283101P	67283101P	1250
67283103P	67283102P	67283103P	67283102P	1600
67283104P	67283103P	67283104P	67283102P	2000
67393102P	67393101P	67393102P	67283104P	2500
67393103P	67393102P	67393103P	67393102P	3200
67393104P	67393103P	67393104P	67393103P	4000
67393105P	67393104P	67393107P	67393104P	5000
	67393105P	-	67393106P	6300

End cover IP55

The end cover is the component that ensures an IP55 protection degree at the end of the line

Protective bellow

Recommended for protection of the interface connection on electric boards, dry-type transformer with enclosure and oil-type transformers.

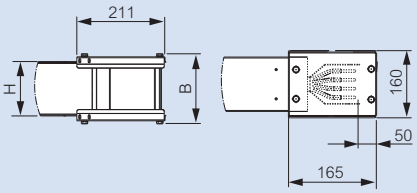
There are 3 different types of protective bellows, to be selected according to the type of busbars.

SF707040	Bellow 700X700 mm. H 400 mm
SF766040	Single bellow 760X600 mm. H 400
SF927140	Double bellow 920x710 mm. H 400

Note: for more details on Protective cover for outdoor applications, please contact Starline.

Dimensions

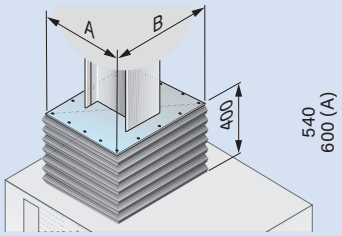
End cover IP55

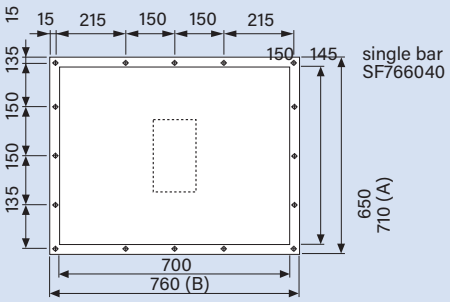


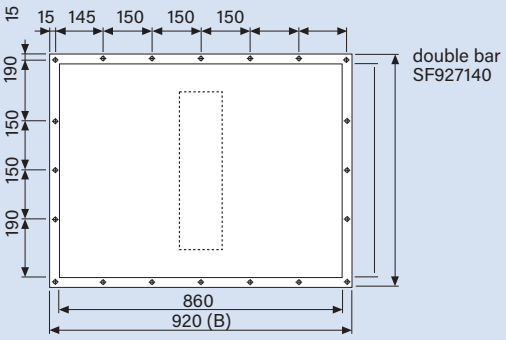
XCP-S				
	Al		Cu	
In (A)	H	B	H	B
630	130	170	-	-
800	130	170	130	170
1000	130	170	130	170
1250	170	210	130	170
1600	200	240	170	210
2000	220	260	200	240
2500	380	420	300	340
3200	440	480	380	420
4000	480	520	440	480
5000	590	630	480	520
6300	-	-	590	630

XCP-HP				
	Al		Cu	
In (A)	H	B	H	B
630	130	170	-	-
800	130	170	130	170
1000	130	170	130	170
1250	130	170	130	170
1600	200	240	170	210
2000	220	260	170	210
2500	380	420	220	260
3200	440	480	380	420
4000	480	520	440	480
5000	740	780	480	520
6300	-	-	680	720

Protective bellow

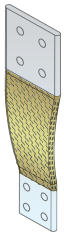






The bellows on this page refer to products with standard dimensions. For need of customized solutions, please before take contact with our engineering department.

FLEXIBLE BRAID CONNECTIONS



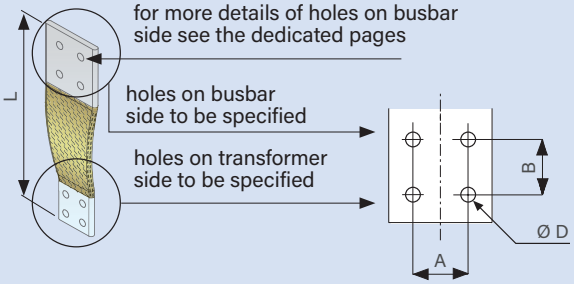
Flexible

Flexible braid connections are used to connect the transformer to the connection interface of the busbar when mechanically uncoupling the two elements is required, to prevent the transmission of vibrations.

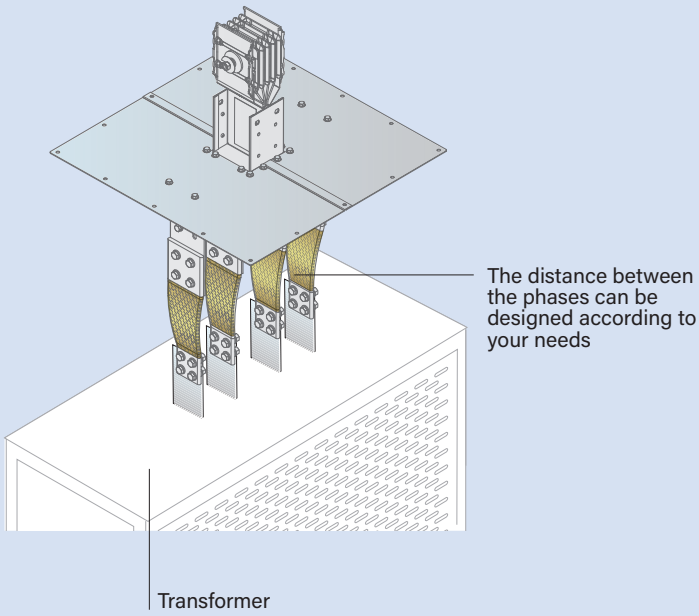
Item		Flexible braid connections		
Al	**Cu**	In (A)	N° braid per phase	L (mm)
FC100010	**-**	630	1	300-450
FC100010	**FC100010**	800		
FC200010	**FC200010**	1000		
FC300010	**FC300010**	1250		
FC500010	**FC500010**	1600		
FC600010	**FC600010**	2000		
FC400010	**FC400010**	2500	2	
FC500010	**FC500010**	3200		
FC600010	**FC600010**	4000		
FC600010	**FC700010**	5000		
-	**FC600010**	6300	3	
FC100020	**-**	630	1	451-600
FC100020	**FC100020**	800		
FC200020	**FC200020**	1000		
FC300020	**FC300020**	1250		
FC500020	**FC500020**	1600		
FC600020	**FC600020**	2000		
FC400020	**FC400020**	2500	2	
FC500020	**FC500020**	3200		
FC600020	**FC600020**	4000		
FC600010	**FC700020**	5000		
-	**FC600010**	6300	3	
FC100030	**-**	630	1	601-750
FC100030	**FC100030**	800		
FC200030	**FC200030**	1000		
FC300030	**FC300030**	1250		
FC500030	**FC500030**	1600		
FC600030	**FC600030**	2000		
FC400030	**FC400030**	2500	2	
FC500030	**FC500030**	3200		
FC600030	**FC600030**	4000		
FC600010	**FC700030**	5000		
-	**FC600010**	6300	3	
FC100099	**-**	630	1	> 750
FC100099	**FC100099**	800		
FC200099	**FC200099**	1000		
FC300099	**FC300099**	1250		
FC500099	**FC500099**	1600		
FC600099	**FC600099**	2000		
FC400099	**FC400099**	2500	2	
FC500099	**FC500099**	3200		
FC600099	**FC600099**	4000		
FC600010	**FC700099**	5000		
-	**FC600010**	6300	3	

Dimensions

Flexible



When ordering, specify:
holes on transformer side/busbar side (dimensions A, B, Ø D) and length L



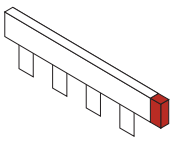
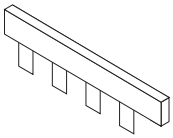
For need of customized solutions, with special drillings, please before take contact with our engineering department.

Note: for insulated flexible braid, please contact Starline.

ATR ELEMENTS

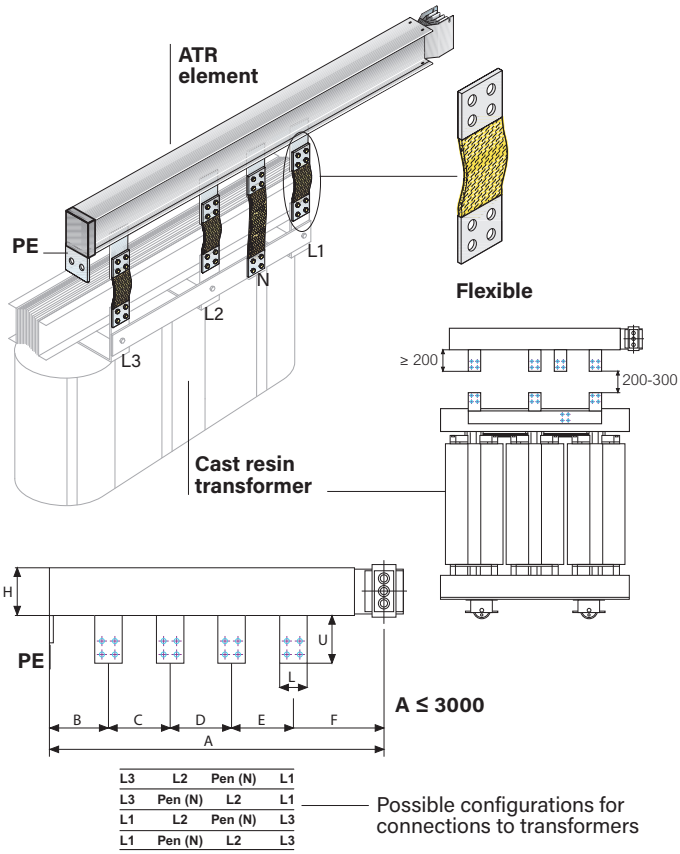
ATR elements

ATR are elements used for connection to electric boards or transformers, similar in everything to straight elements.
These elements may be used for connection to both cast resin and oil transformers, and offer the advantage that the connection interfaces may be installed directly on the vertical section of the transformer terminals, minimising the time required for the connection of the busbar trunking system to the transformer. Each element is designed based on precise connection specifications supplied by the customer.

SIMPLE ATR	
 Type 1	 Type 2

Note: for special dimensions, please contact Legrand.

Dimensions



L3	L2	Pen (N)	L1
L3	Pen (N)	L2	L1
L1	L2	Pen (N)	L3
L1	Pen (N)	L2	L3

Possible configurations for connections to transformers

ATR dimensions

Although designed ad-hoc, ATR elements are still subjected to construction limits.

Below are the summarizing tables indicating these values:

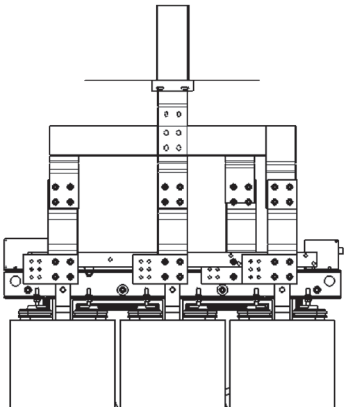
MINIMUM INTERAXES (mm)								
FEEDER ELEMENT ATR DIMENSIONS [SINGLE BAR]								
BarSize	**H**	**B**	**C**	**D**	**E**	**F**	**L**	**U**
B70 - B75 - B80	130	200	165	165	165	335	90	200
B110	130	200	165	165	165	335	110	200
B120	130	200	165	165	165	335	120	200
B160	170	220	205	205	205	355	160	200
B190	200	245	255	255	255	380	190	200
B210	220	245	255	255	255	380	210	200

FEEDER ELEMENT ATR DIMENSIONS [DOUBLE BAR]								
BarSize	**H**	**B**	**C**	**D**	**E**	**F**	**L**	**U**
2B120	300	220	205	205	205	355	120	200
2B160	380	220	205	205	205	355	160	200
2B190	440	235	235	235	235	370	190	200
2B210	480	245	255	255	255	380	210	200

FEEDER ELEMENT ATR DIMENSIONS [TRIPLE BAR]								
BarSize	**H**	**B**	**C**	**D**	**E**	**F**	**L**	**U**
3B160	590	220	205	205	205	355	160	200
3B190	680	235	235	235	235	370	190	200
3B210	740	245	255	255	255	380	210	200

TECHNICAL INFORMATION

The system: the Legrand transformer advantage



Legrand
Cast Resin Transformers

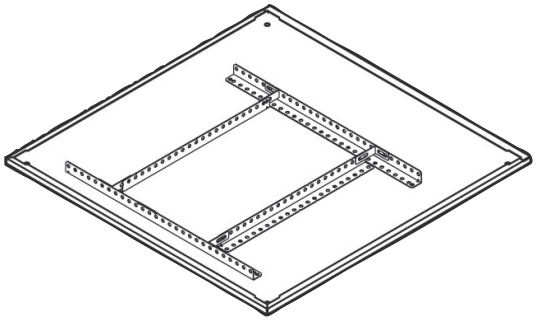
Certificate of conformity for the connection between transformer and busbar mounted on CRT box

The Legrand group product synergy answers to the global installation need.
The Legrand cast resin transformers have specifically designed connections for the Legrand busbars.

The versions shown represent some of the standardized solutions.

Please contact Legrand for more details on the dimensions

The system:the Legrand XL³ advantage



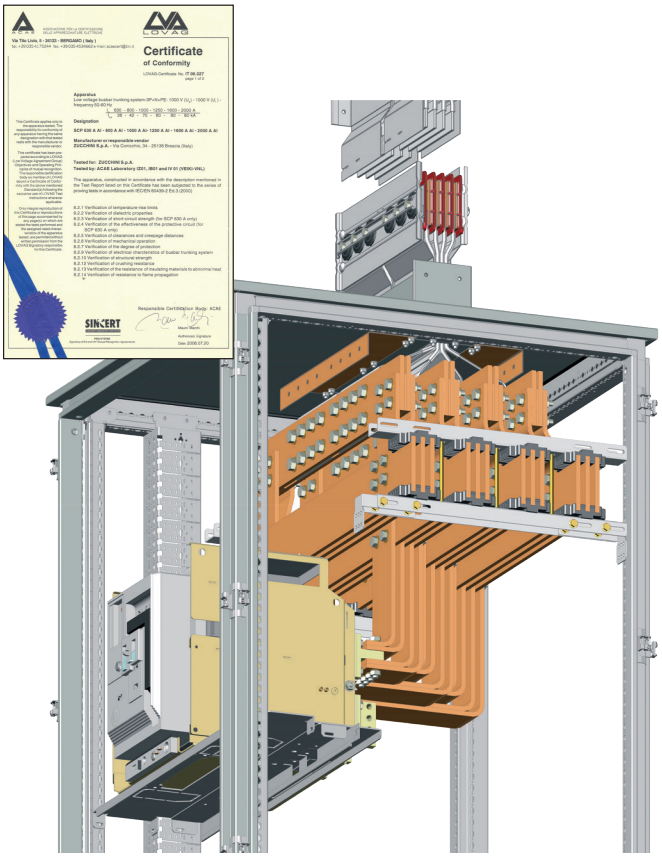
Installation kit for XL³ cabinets
Kit Cat.No 0 205 29 for reinforcing the roof of the XL³ cabinets for the installation of the Legrand interface to connect the busbar systems.

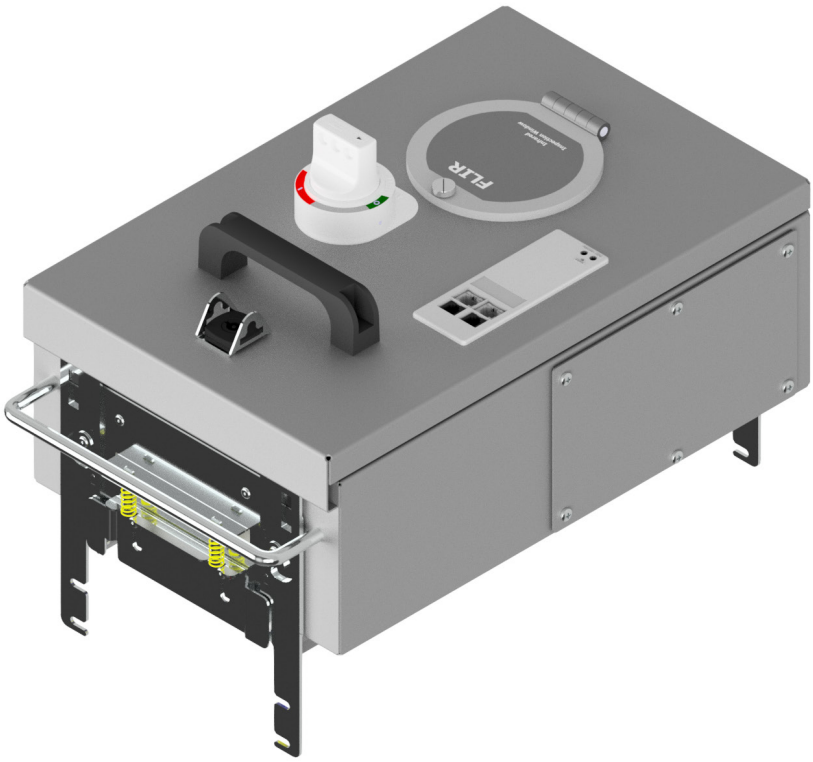
The Super Compact – XCP-S range can be easily and immediately combined with the Legrand XL³ 4000 cabinets. The reinforcement kit enables you to install any type of unit to the board onto the roof of the XL³ structure in a quick and easy way.

Upon request, and with the specific measurements, custom made connections between the XCP-S interface and the DMX air-circuit breaker can be supplied for installation in the XL³ cabinets.

The safety and the operational efficiency of the Legrand system are guaranteed by the system certification, achieved after rigorous tests carried out in the most important international laboratories.

For more details about the XL³, please refer to the general Legrand catalogue.





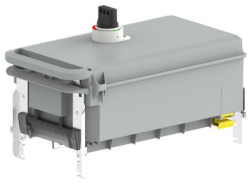
TAP-OFF BOXES

Tap-off boxes from 63 to 630 A

The new range of universal tap-off boxes suitable for both XCP-S and XCP-HP

Available in 2 different materials: fiberglass and metal sheet, both characterised by a simple installation and fast connection thanks to the new layout of the hooks that offer safety and assembly speed.

FIBERGLASS TAP-OFF BOXES - 63 A TO 250 A : PLUG-IN TYPE



50485231

50485343

IP55.
Equipped with a sectioning cover. It can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets. Its rating goes from 63 A to 250 A.

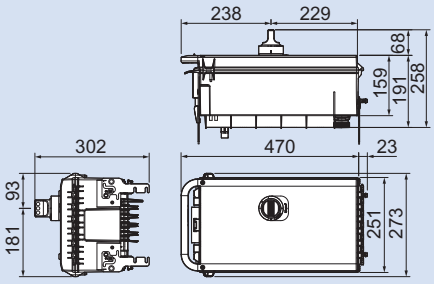
Item			
	Tap-off boxes DPX³ ready*		
	Prepared for Legrand MCCB (not provided) and available in 2 versions, one with hinged cover and one with completely removable cover. Supplied "ready for" DPX³, with rotary handle already installed on the cover and rotary mechanism inside the box.		
	In (A)	Type	
50485231	63	2	
50485232	160	2	
50485333	250	3	
	Tap-off boxes with fuse carriers		
	Equipped with fuse carriers. Fuses not included. For the selection of fuses, see Legrand catalogue		
	In (A)	Type	Fuse carrier
50485202	63	2	3xNH00
50485203	125	2	3xNH00
50485204	160	2	3xNH00
50485305	250	3	3xNH2
	Empty Tap-off boxes		
	In (A)	Type	
50485211	32 A - 12 module**	2	
50485212	63 A - 12 module	2	
50485213	125 A - 12 module	2	
50485221	32 A - blind cover**	2	
50485222	63 A - blind cover	2	
50485223	160 A - blind cover	2	
50485241	63 A - 12 module + 2 P17 sockets place	2	
50485242	160 A - 12 module + 2 P17 sockets place	2	
50485314	250 A - 12+12 module	3	
50485324	250 A - blind cover	3	
50485343	250 A - 12 + 12 module +3 P17 sockets place	3	

** Cover without sectioning device

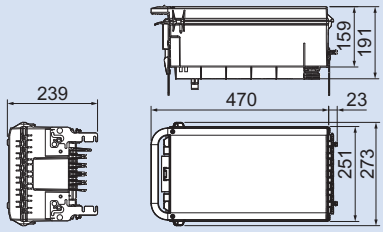
* DPX³: MCCB (Moulded Case Circuit Breaker)
not mounted and not supplied

Dimensions

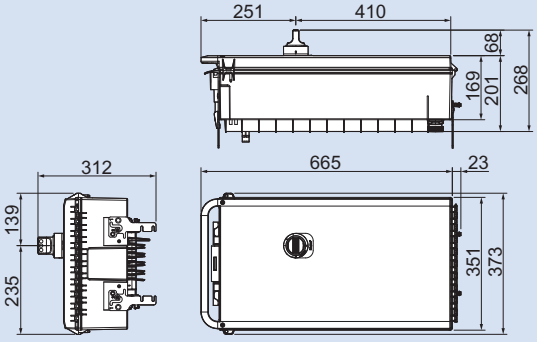
Type 2 DPX³ ready



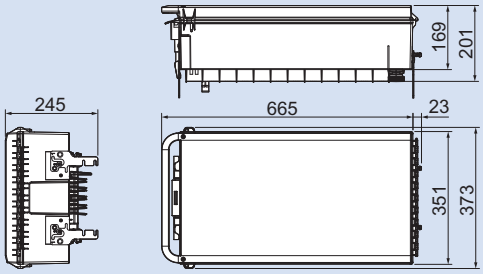
Type 2 empty /with fuse carriers



Type 3 DPX³ ready

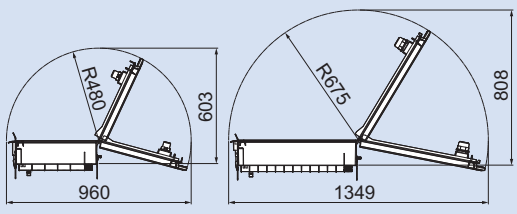


Type 3 empty / with fuse carriers



Total dimensions with cover open

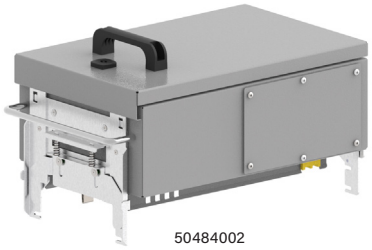
Type2 Type3



For the size of the Type 2 and Type 3 terminals, see the metal boxes on the following pages with this rule:
plastic T2 terminals = metal T1 terminals
plastic T3 terminals = metal T2 terminals

Note: The Type 1 tap-off box will also be available in the future, which will allow the rating to be extended to 32A

METAL TAP-OFF BOX TYPE 1 - 63 A TO 160 A : PLUG-IN TYPE



50484002

IP55.
Equipped with a sectioning cover. It can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets. These are the smallest metal tap-off boxes available and its rating goes from 63 A to 160 A.

Item	Tap-off boxes DPX³ ready*	
	Prepared for Legrand MCCB (not provided) and available in 2 versions, one with hinged cover and one with completely removable cover.	
		In (A)
50481721		63/125/160 A
50481731		63/125/160 A - removable cover

	Tap-off boxes with fuse carriers	
	Equipped with fuse carriers. Fuses not included. For the selection of fuses, see Legrand catalogue	
	In (A)	Fuse carrier
50484021	63	3xNH00
50484022	125	3xNH00
50484023	160	3xNH00

	Tap-off boxes with switch fuse
	Equipped with a switch disconnector (AC23) and a fuse carrier. The disconnector switch is operated through a rotary handle on the cover (not shown in the picture). N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position. Fuses not included. For the selection of fuses, see Legrand catalogue
	In (A)
50481621	63 A
50481622	125 A
50481623	160 A
50481631	63 A - removable cover
50481632	125 A - removable cover
50481633	160 A - removable cover

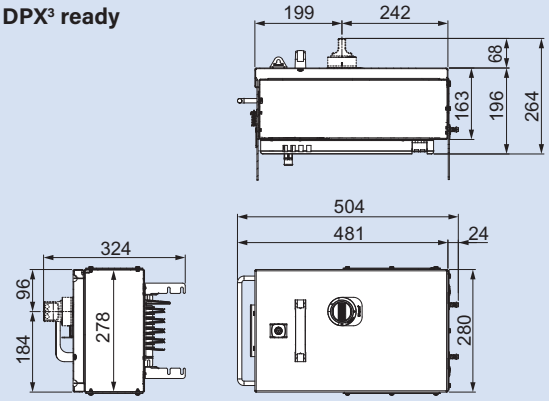
	Empty Tap-off boxes
	In (A)
50484002	63
50484003	125/160

Dimensions

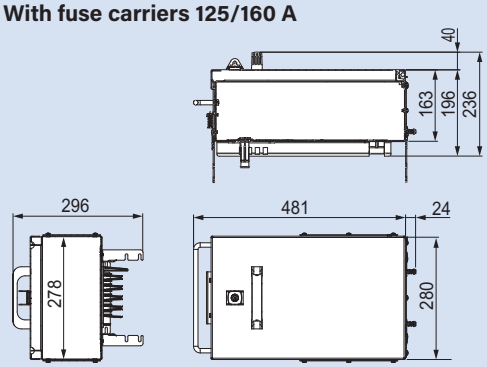
Type 1 (63 - 125 - 160 A)

Box dimensions (mm)

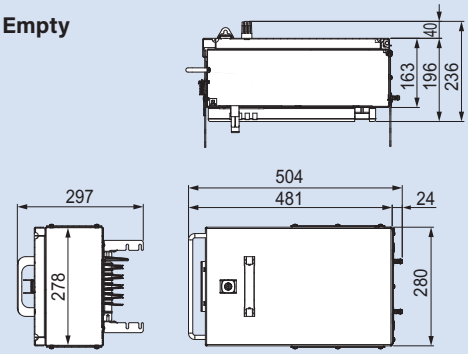
DPX³ ready



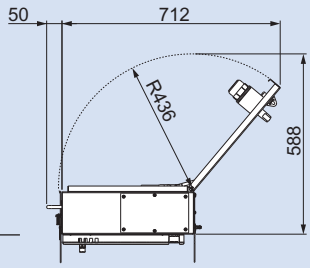
With fuse carriers 125/160 A



Empty

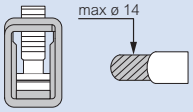


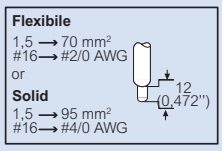
Total dimensions with cover open

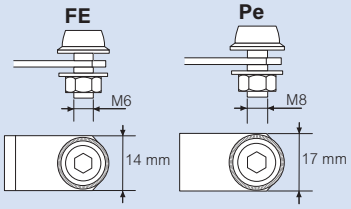


Terminal dimensions type 1 - DPX³ ready (mm)

L1 L2 L3 N

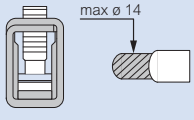


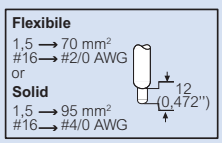




Terminal dimensions type 1 - empty (mm)

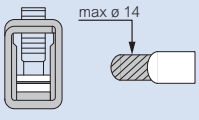
L1 L2 L3 N FE Pe

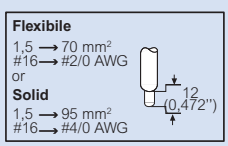




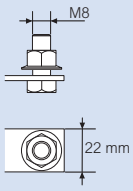
Terminal dimensions type 1 - fuse carriers (mm)

N FE Pe



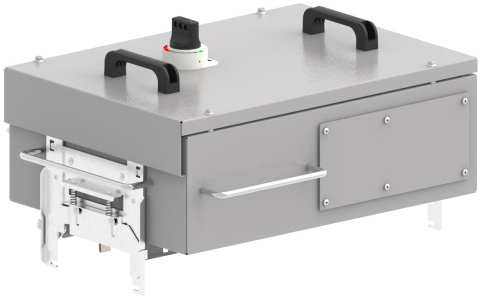


L1 L2 L3



* DPX³: MCCB (Moulded Case Circuit Breaker) not mounted and not supplied

METAL TAP-OFF BOX TYPE 2 - 250 A: PLUG-IN TYPE



50481732

IP55.
Equipped with a sectioning cover. It can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets. These are the medium size metal tap-off boxes available and its rating is 250 A.

Item	Tap-off boxes DPX³ ready*	
	Prepared for Legrand MCCB (not provided) and available in 2 versions, one with hinged cover and one with completely removable cover.	In (A)
50481722		250 A
50481724		250 A - DRXHP ready
50481732		250 A - removable cover
50481734		250 A - DRXHP ready removable cover

	Tap-off boxes with fuse carriers		
	Equipped with fuse carriers. Fuses not included. For the selection of fuses, see Legrand catalogue	In (A)	Fuse carrier
50484024		250	3xNH2

	Tap-off boxes with switch fuse	
	Equipped with a switch disconnector (AC23) and a fuse carrier. The disconnector switch is operated through a rotary handle on the cover (not shown in the picture). N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position. Fuses not included. For the selection of fuses, see Legrand catalogue	In (A)
50481624		250 A - switch fuse
50481634		250 A - switch fuse removable cover

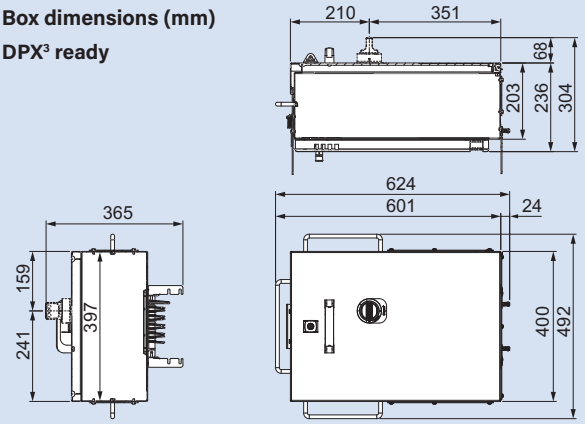
	Empty Tap-off boxes
	In (A)
50484005	250

Dimensions

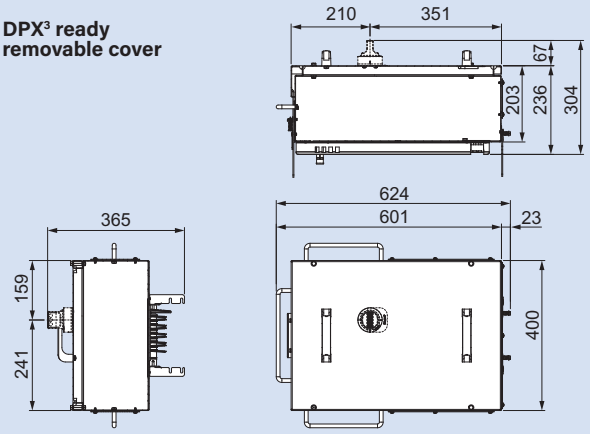
Type 2 (250A)

Box dimensions (mm)

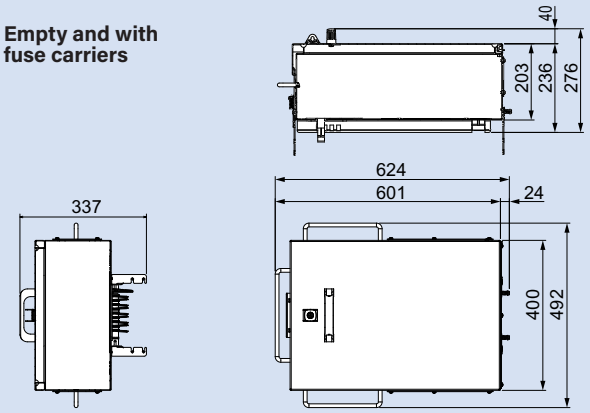
DPX³ ready



DPX³ ready removable cover

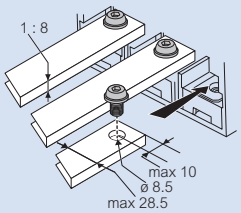


Empty and with fuse carriers



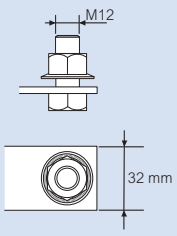
Terminal dimensions type 2 DPX³ ready and empty (mm)

L1 L2 L3 N FE Pe

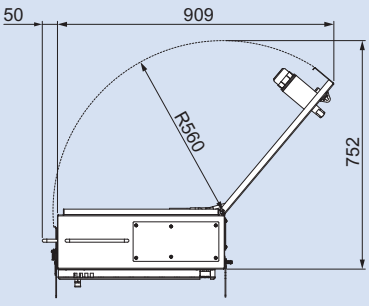


Terminal dimensions type 2 fuse carriers (mm)

L1 L2 L3 N FE Pe

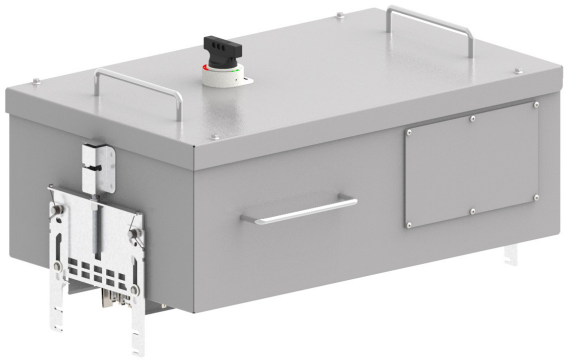


Total dimensions with cover open



* DPX³: MCCB (Moulded Case Circuit Breaker) not mounted and not supplied
Rotary handles for DPX³ already mounted

METAL TAP-OFF BOX TYPE 3 - 400 A TO 630 A : PLUG-IN TYPE



50481733

IP55.
Equipped with a sectioning cover. It can be installed and removed when the busbar is energized. To be applied on elements with any rating, with tap-off outlets. These are the largest size metal tap-off boxes available and its rating is 400 A or 630 A.

Item	Tap-off boxes DPX³ ready*	
	Prepared for Legrand MCCB (not provided) and available in 2 versions, one with hinged cover and one with completely removable cover.	
		In (A)
50481723		400/630 A - DPX³ ready
50481733		400/630 A - DPX³ ready removable cover

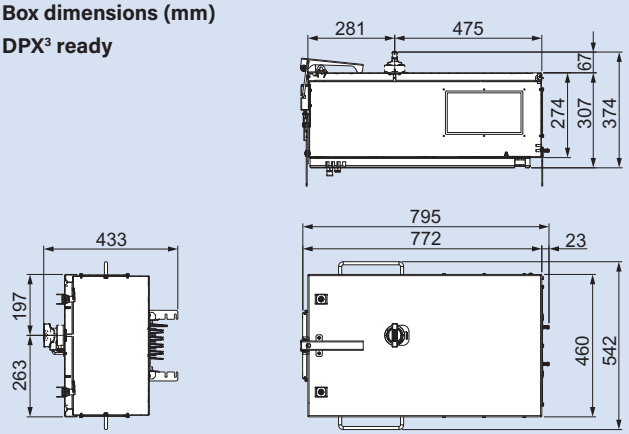
	Tap-off boxes with fuse carriers	
	Equipped with fuse carriers. Fuses not included. For the selection of fuses, see Legrand catalogue	
	In (A)	Fuse carrier
50484025	400	3xNH2
50484026	630	3xNH3

	Tap-off boxes with switch fuse	
	Equipped with a switch disconnector (AC23) and a fuse carrier. The disconnector switch is operated through a rotary handle on the cover (not shown in the picture). N.B. Cover with AC21A disconnection: it is not possible to open, close, install or pull out the tap-off box if the switch is in "ON" position. Fuses not included. For the selection of fuses, see Legrand catalogue	
		In (A)
50481625		400 A - switch fuse
50481635		400 A - switch fuse removable cover
50481626		630 A - switch fuse
50481636		630 A - switch fuse removable cover

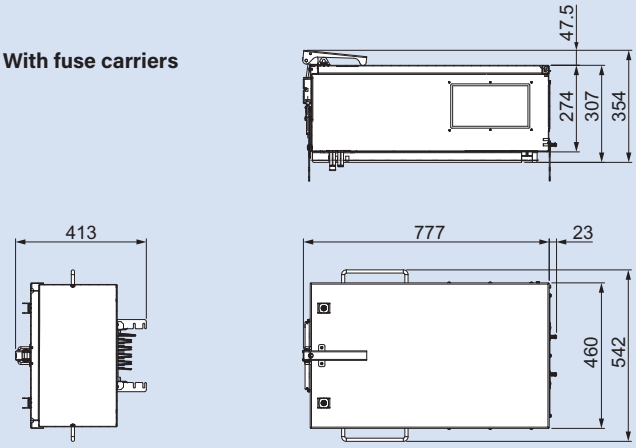
	Empty Tap-off boxes	
		In (A)
50484006		630 A

Dimensions

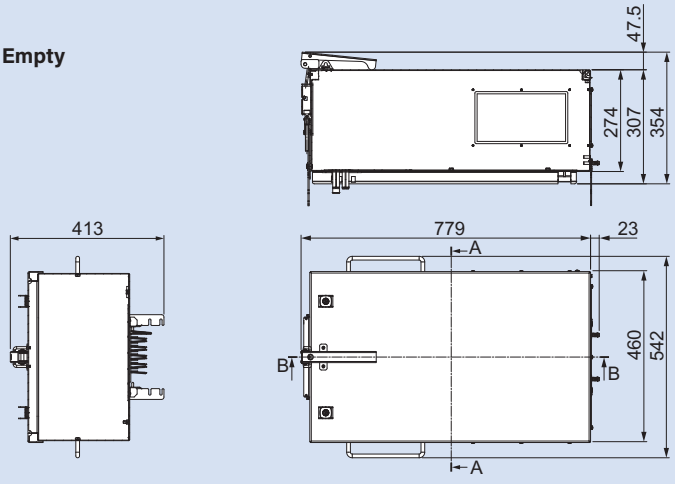
Type 3 (400 - 630 A)
Box dimensions (mm)
DPX³ ready



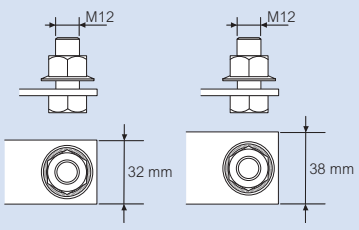
With fuse carriers



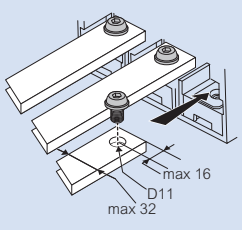
Empty



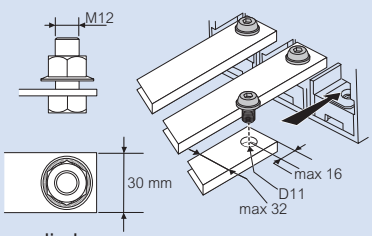
Terminal dimensions type 3 - fuse carriers (mm)



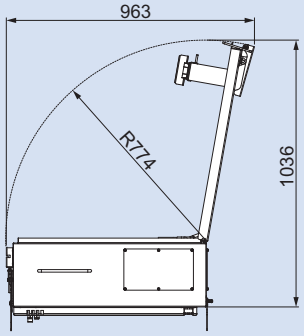
Terminal dimensions type 3 - empty (mm)



Terminal dimensions type 3 - DPX³ ready (mm)

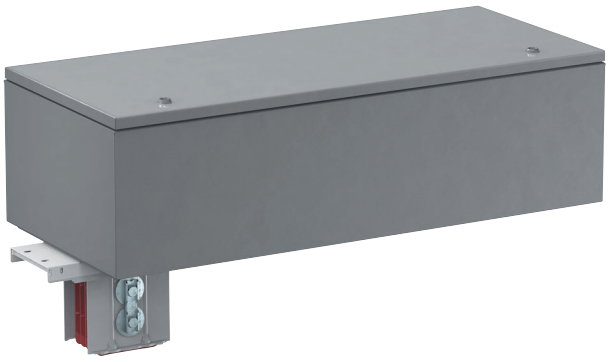


Total dimensions with cover open



* DPX³: MCCB (Moulded Case Circuit Breaker) not mounted and not supplied
Rotary handles for DPX³ already mounted

TAP-OFF BOX ON THE JUNCTION - 125 A TO 1250 A: BOLT-ON TYPE



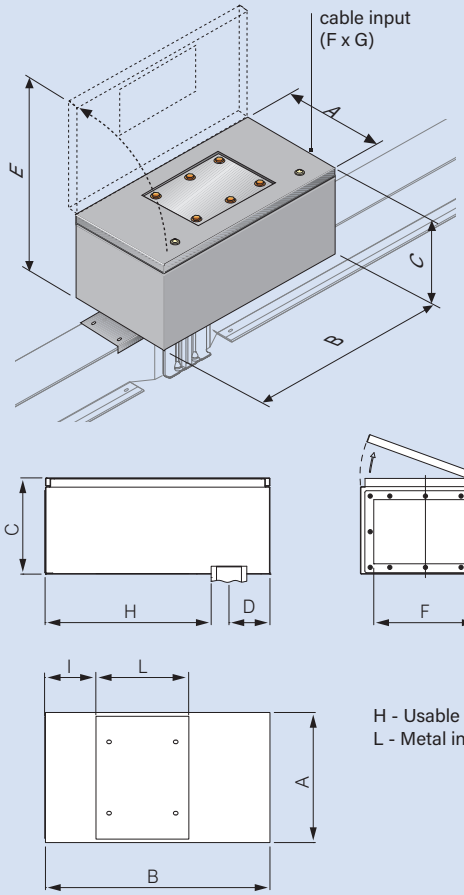
67281931P

Item	Empty Tap-off boxes bolt-on TYPE
	IP55 Can be installed on elements with any rating, with or without tap-off outlets.
	Description
67281931P	Bolt on box empty for 120 mm single bar
67281932P	Bolt on box empty for 160 mm single bar
67281933P	Bolt on box empty for 190 mm single bar
67281934P	Bolt on box empty for 210 mm single bar
67391931P	Bolt on box empty for 2 x 120 mm bars
67391932P	Bolt on box empty for 2 x 160 mm bars
67391933P	Bolt on box empty for 2 x 190 mm bars
67391934P	Bolt on box empty for 2 x 210 mm bars

Please contact Starline for more details on the dimensions.

Dimensions

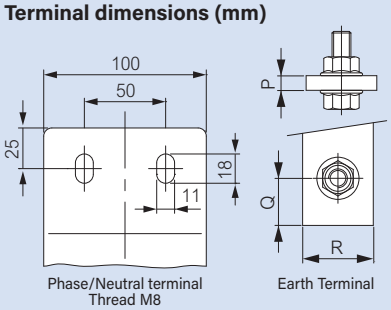
From 125 A to 1250 A



H - Usable internal space
L - Metal internal plate

In (A)	A	B	C	D	E	F	G	H	I	L
125										
250	365	630	270	115	630	290	180	465	142	260
400										
630	400	750	280	115	675	290	180	585	227	295
800										
1000	450	1050	300	115	745	380	210	885	254	545
1250										

Terminal dimensions (mm)



Type	In (A)	Earth Terminal			
		P	Q	R	Thread
5A	**125**	3.3	20	30	M8
	250	3.3	20	30	M8
	400	3.3	20	30	M8
5B	**630**	5.3	20	30	M8
5C	**800**	6.2	20	30	M8
	1000	6.2	20	30	M8
	1250	6.2	20	30	M8

WARNING

The bolted boxes are to be installed when the busbar is disconnected and not energized.

In order to finalize the order, it is necessary to specify the type of XCP the box will be installed on.

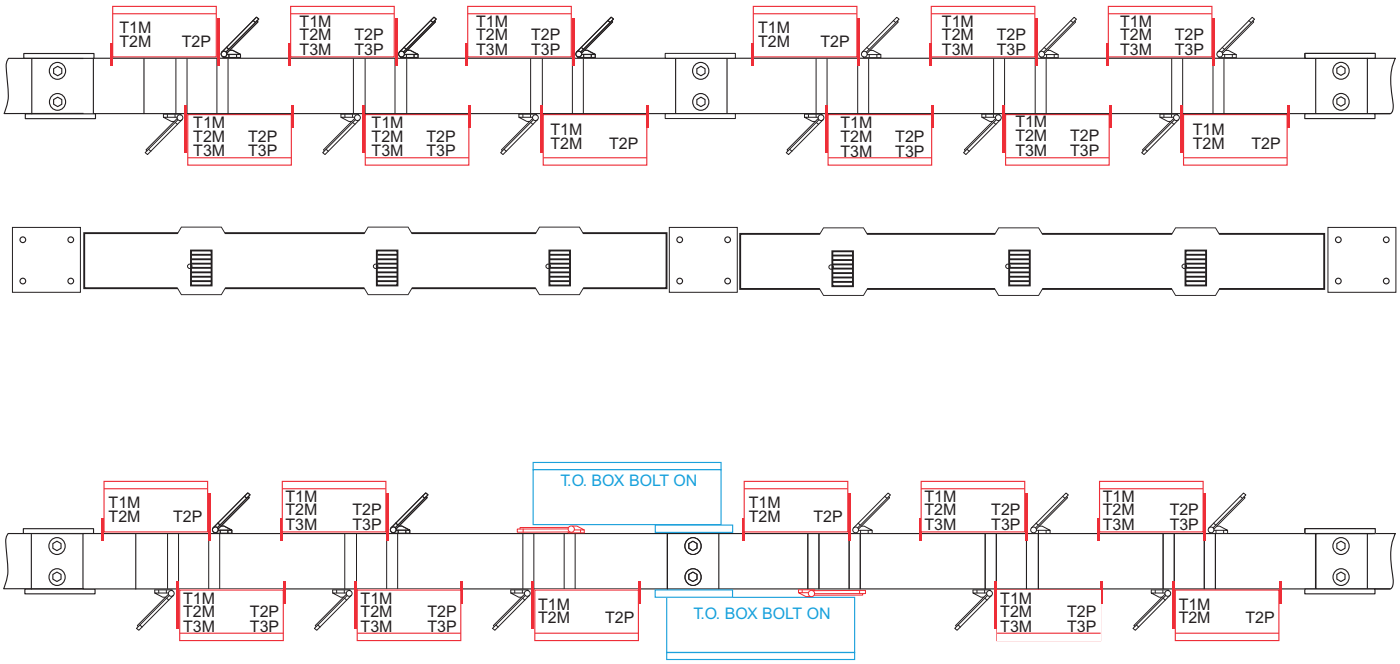
Tap-off boxes can be pre-equipped with DPX moulded case circuit breakers (MCCB) upon request.

EXAMPLE DIAGRAM

Technical information

Not all boxes can be installed in any position.

The following figures show where the various Plug-in/Bolt-on boxes may be installed on elements with standard setup.



T1/T2/T3: type of tap-off box
M: metal tap-off box
P: fiberglass plastic tap-off box

XCP PLUG IN UNITS

Circuit Breaker/Fused Disconnect:

50481721	-	50	-	C	L	160	4	-
1. Base Number		2. Interrupt Rating		3. Ground/ Earth	4. Protection	5. Rated Current	6. Poles	

415	R	-	M59	S	3	-	STD
7. Voltage	8. Accessories		9. Meter Release	10. Meter Options	11. Meter Configuration		12. Paint Color

1. Base Number

*See catalog pages 84-88

2. Interrupt Rating (kA)

10 **25** **50** **70** **CC=100**

3. Ground/Earth

C Case PE
D Case PE + FE
G Case PE & Isolated FE

4. Protection

L Legrand DPX³ MCCB or Fused Disconnect
For other manufacturers, please consult factory

5. Rated Current

063 **100** **160** **250** **400**
630 **800** **1K0** **1K2**

6. Poles

3 **4**

7. Voltage

400 **415** **480** **600** **1K0**

8. Accessories

N none
R Rec IR Window
C Circ. IR Window

9. Critical Power Monitor (AC/DC)

M51 Single Eth./WiFi, ≤480V Y, ≤277V Δ
M53 Single Eth./No WiFi, ≤480V Y, ≤277V Δ
M58 Dual Eth., ≤480V Y, ≤277V Δ
M59 Dual Eth./Dual Modbus, ≤480V Y, ≤277V Δ
M61 Single Eth./WiFi, single phase, VDC
M63 Single Eth./No WiFi, single phase, VDC

9. Critical Power Monitor (AC/DC)

M67 Dual Eth., single phase, VDC
M69 Dual Eth/Dual Modbus, single phase, VDC

10. Meter Options

AC Options (M/V50)

S Standard
D 7 Segment Display

DC Options (M/V60)

S Standard (High Voltage*)
P Standard (48vdc)
D Display (High Voltage*)
Q Dispay (48vdc)

*M60 Meters support: High Voltage: 120 to 300 VDC/Split Phase 120 VDC (+/-60) to 380 VDC (+/-180) OR
Low Voltage: 48 VDC

11. Meter Configuration

1 LL power, Delta Solid Core, mV CT
2 LL power, Wye Solid Core, mV CT
3 LN power, Wye Solid Core, mV CT
4 LN power, Delta Solid Core, 5A-secondary CT
5 LL power, Wye Solid Core, 5A-secondary CT
6 LN power, Wye Solid Core, 5A-secondary CT
7 LL power, Delta Split Core, mV CT
8 LL power, Wye Split Core, mV CT
9 LN power, Wye Split Core, mV CT
K LN power, Delta Split Core, 5A-secondary CT
L LL power, Wye Split Core, 5A-secondary CT
M LN power, Wye Split Core, 5A-secondary CT

***10 Meter Configuration (M60 DC)**

1 Circuit 1 Only, Solid Core
2 Circuit 1 Only, Solid Core
3 Both Circuits, Solid Core

12. Paint Color

STD Paint Factory Gray
*For other RAL color options, please consult factory

XCP PLUG IN UNITS

Circuit Breaker/Fused Disconnect Meter Options:

50481721	-	50	-	C	L	160	4	-
1. Base Number		2. Interrupt Rating		3. Ground/ Earth	4. Protection	5. Rated Current	6. Poles	

415	R	-	M59	S	3	-	STD
7. Voltage	8. Accessories		9. Meter Release	10. Meter Options	11. Meter Configuration		12. Paint Color

9. Critical Power Monitor (AC/DC)

M51	Single Eth./WiFi, ≤480V Y, ≤277V Δ
M53	Single Eth./No WiFi, ≤480V Y, ≤277V Δ
M58	Dual Eth., ≤480V Y, ≤277V Δ
M59	Dual Eth./Dual Modbus, ≤480V Y, ≤277V Δ
M61	Single Eth./WiFi, single phase, VDC
M63	Single Eth./No WiFi, single phase, VDC
M67	Dual Eth., single phase, VDC
M69	Dual Eth/Dual Modbus, single phase, VDC

***Tap-off boxes with an M50 or M60 meter installed will carry an ingress protection rating of IP2X.**

10. Meter Options

AC Options (M/V50)		DC Options (M/V60)	
S	Standard	**S**	Standard (High Voltage*)
D	7 Segment Display	**P**	Standard (48vdc)
		D	Display (High Voltage*)
		Q	Dispay (48vdc)

*M60 Meters support: High Voltage: 120 to 300 VDC/Split Phase 120 VDC (+/-6z0) to 380 VDC (+/-180) OR Low Voltage: 48 VDC

11. Meter Configuration

1	LL power, Delta Solid Core, mV CT
2	LL power, Wye Solid Core, mV CT
3	LN power, Wye Solid Core, mV CT
4	LN power, Delta Solid Core, 5A-secondary CT
5	LL power, Wye Solid Core, 5A-secondary CT
6	LN power, Wye Solid Core, 5A-secondary CT
7	LL power, Delta Split Core, mV CT
8	LL power, Wye Split Core, mV CT
9	LN power, Wye Split Core, mV CT
K	LN power, Delta Split Core, 5A-secondary CT
L	LL power, Wye Split Core, 5A-secondary CT
M	LN power, Wye Split Core, 5A-secondary CT

***10 Meter Configuration (M60 DC)**

1	Circuit 1 Only, Solid Core
2	Circuit 1 Only, Solid Core
3	Both Circuits, Solid Core

IN OPTION 9 you are able to select metering for your plug-in unit. Starline Critical Power Monitors are the best options for plug-in units, for either AC or DC voltages.

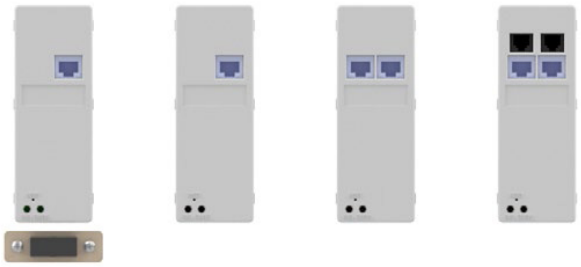
The communication options include:

- Single Ethernet + WiFi
- Single Ethernet
- Dual Ethernet
- Dual Modbus + Dual Ethernet

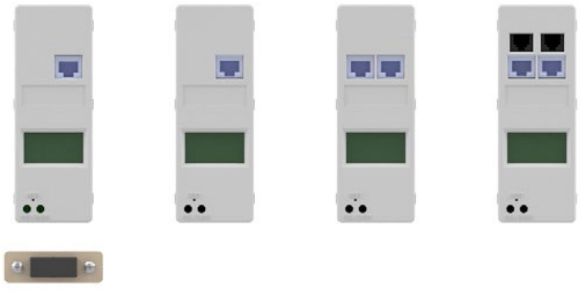
The difference between 'M' and 'V' on AC metering is that M50 series meters are capable of monitoring the current of the entire unit, and V50 series meters are capable of monitoring up to 6 individual devices limited to 6 solid core Current Transformers (CTs). Each unit is calibrated for accuracy and is within 0.5% to meet Revenue Grade requirements.

M/V56 and M/V57 meters also have the capability to sense circuit breaker position (on/off) for up to two breakers.

Critical Power Monitor (No Display)



Critical Power Monitor with Optional Display



Single Ethernet w/ Wi-Fi **M/V51**	Single Ethernet **M/V53**	Dual Ethernet **M/V58**	Dual Modbus Dual Ethernet **M/V59**

XCP PLUG IN UNITS

Circuit Breaker/Fused Disconnect with Wiring Device

50485241	-	25	-	C	L	-	2	-
1. Base Number		2. Interrupt Rating		3. Ground/ Earth	4. Protection		5. Quantity of Devices	

563R6S	N	-	M59	S	-	STD
6. Device Code	7. Accessories		8. Meter Release	9. Meter Options		10. Paint Color

1. Base Number

*See catalog pages 84-88

2. Interrupt Rating (kA)

10 **25** **50** **70** **CC=100**

3. Ground/Earth

C Case PE
D Case PE + FE
G Case PE & Isolated FE

4. Protection

L Legrand DPX³ MCCB or Fused Disconnect
For other manufacturers, please consult factory

5. Quantity of Devices

2 **3** **4**

6. Device Code

**Legrand IEC 60309 Wiring Devices, standard nomenclature ex. 5100C6S

Example:

50485241-25-CL-2563R6SN-V59D-STD
= 63A, Type 2 Plastic Plug-in, with Legrand DPX3 25kA Icu MCCB, Case earth, (2) 563R6S receptacles, no accessories, with V59D Critical Power Monitoring.

7. Accessories

N N/A

8. Critical Power Monitor (AC/DC)

V51 Single Eth./WiFi, ≤480V Y, ≤277V Δ
V53 Single Eth./No WiFi, ≤480V Y, ≤277V Δ
V58 Dual Eth., ≤480V Y, ≤277V Δ
V59 Dual Eth./Dual Modbus, ≤480V Y, ≤277V Δ
V61 Single Eth./WiFi, single phase, VDC
V63 Single Eth./No WiFi, single phase, VDC
V67 Dual Eth., single phase, VDC
V69 Dual Eth/Dual Modbus, single phase, VDC

*Tap-off boxes with an M50 or M60 meter installed will carry an ingress protection rating of IP2X.

9. Meter Options

S Standard
D 7 Segment Display

10. Paint Color

STD Paint Factory Gray
*For other RAL color options, please consult factory

XCP PLUG IN UNITS

Circuit Breaker/Fused Disconnect

50481721 - **C** - **STD**

1. Base Number
2. Ground/ Earth
3. Paint Color

1. Base Number

*See catalog pages 84-88

2. Ground/Earth

C Case PE
D Case PE + FE
G Case PE & Isolated FE

3. Paint Color

STD Paint Factory Gray
*For other RAL color options, please consult factory

Example:

50481721-C-STD
= 160A, Empty Type 1 Metal Plug-in, Case Protective Earth

OPERATING INFORMATION

Suggestions for the design and installation of the busbar

Operational information and advice for the correct design and construction of the busbar trunking system.

SUGGESTIONS FOR THE PROJECT DEVELOPMENT

1. **Rating**

   2500 A

2. **Application:**

   Transport ☐

   Distribution ☐ No. of outlets .....

3. **Icc at the beginning of the line** .....kA

4. **Material:**

   Aluminium ☑

   Copper ☐

5. **Degree of protection:**

   IP55 (standard) ☑

   IP65 (only for transport of Energy) ☐

6. **Painting**:

   RAL7035 (standard) ☑

   Different RAL

   colour on request ..... ☐

7. **Neutral section:**

   100% XCP (standard) ☑

   200% XCP 2N ☐

8. **Nominal ambient**

   temperature:

   35°C (standard) ☑

   Other on request..... ☐

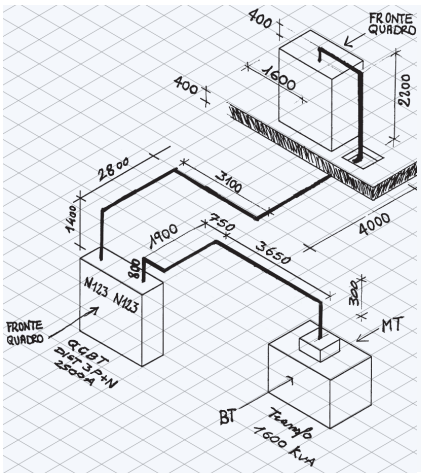
9. **Attach Busbar layout***

   Drawing ☑

   Dwg file ☐

   Revit file ☐

* Example of drawing to attach

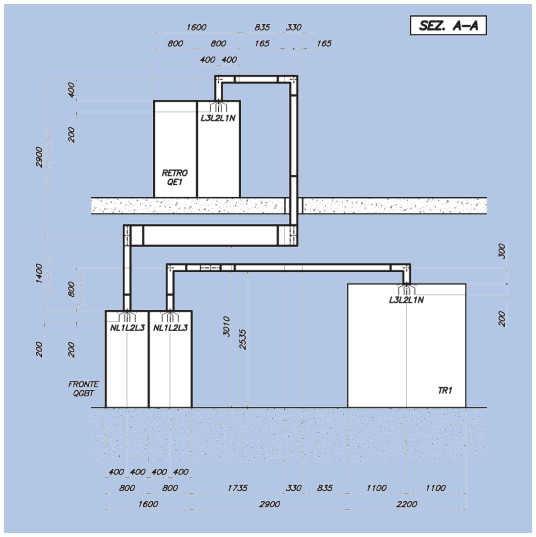


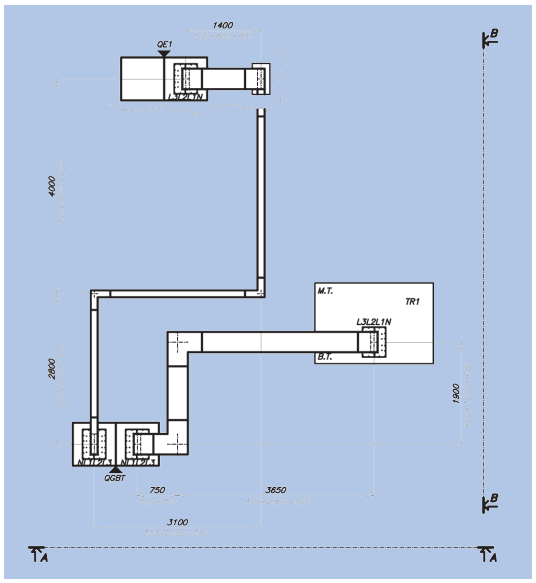
Example for quotation check list:

Checklist to be done during the project

1. Verify the measurements of the drawings, the correct position of the equipment (MV/LV transformer and LV electric board enclosures).
2. Check the availability of drawings required (transformer, electric board, etc.).
3. Check for the existence of unforeseen obstacles in the installation which could impede the run of the Busbar (for example pipelines, ventilation and air-conditioning ducts).
4. Agree upon who is responsible for providing the connection from the Busbar to the other devices (MV/LV transformer and LV electric boards).

Example of detail of the project



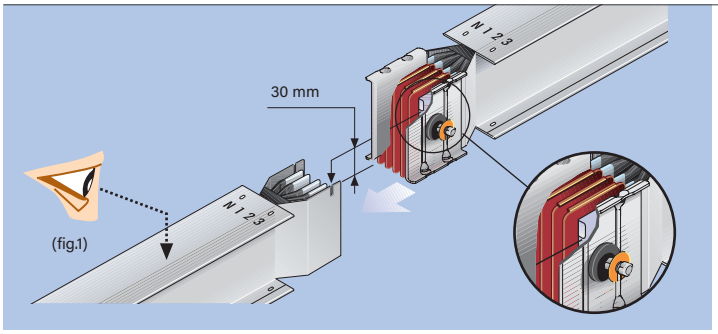


Starline provides without charge, if required:

- The mechanical layout of the project
- Study of the connections between the Busbar and the transformer or between electric board enclosures
- Suggestions for the type of fixing (floor, wall, ceiling...)
- Possibility of site measurement by qualified persons
- Telephone assistance during the entire installation stage by the Engineering Design Office

INSTALLATION GUIDELINES

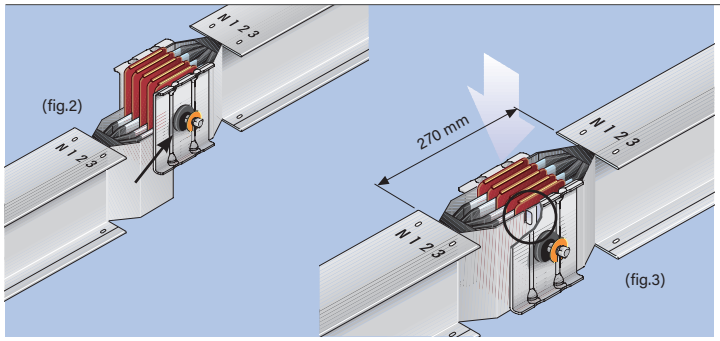
Installation sequence of the junction



The installation instructions are placed on every element near the junction.

Make sure that the contacts are clean.

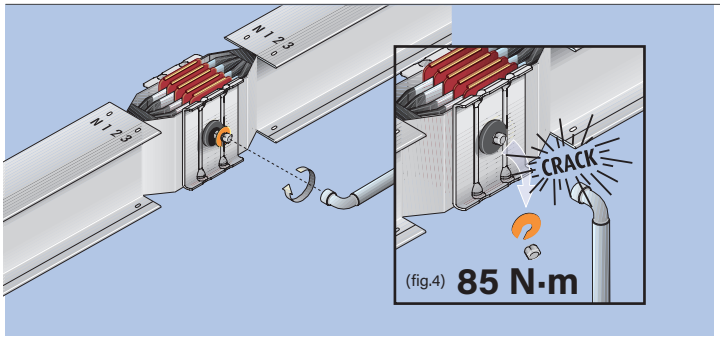
Join the two elements together (Fig.1).



Make sure that the earth plate of the straight element is inserted behind the front plate of the junction monobloc (Fig.2).

The positioning pin on the monobloc should be fitted into the corresponding slot on the earth plate.

Verify the distance between elements, 270mm, before tightening the monobloc completely (Fig.3).

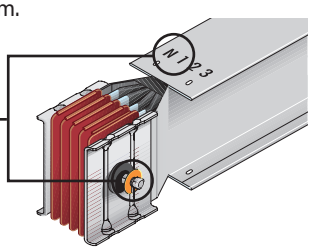


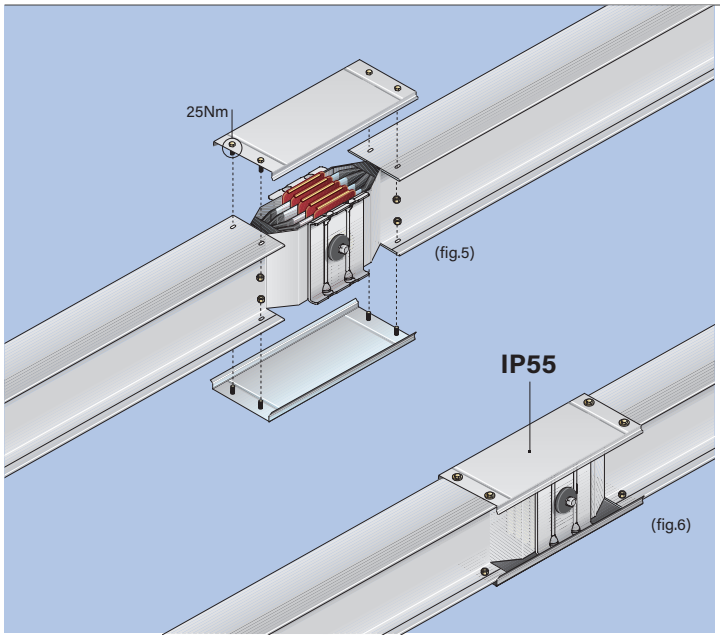
Tighten the bolt of the monobloc until the 1st head breaks off (Fig. 4).

The bolt that tightens the monobloc has a second head which is used when carrying out operations or inspections on the line.

The nominal tightening torque is 85 N·m.

In standard execution the self-shearing bolt is fitted on the opposite side of the Neutral.





Install the covers of the junction (Fig. 5).

Connection completed correctly with Protection degree IP55 (Fig.6).

MECHANICAL DESIGN PRECAUTIONS

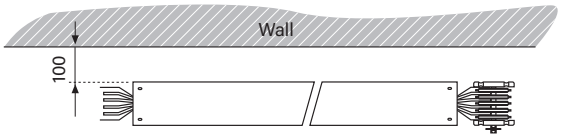
Below are some precautions that may be useful to avoid problems during the assembly, which we recommend should be taken into account during the design.

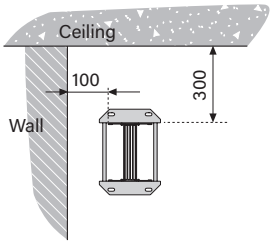
Minimum distances from the structure

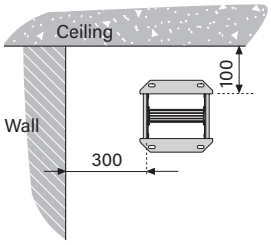
The minimum distance from the walls, to avoid problems duringedgewise installation of the busbar, is 300 mm
The variables that must be taken into account for correct assembly are:
- position of the bolt for tightening the Monobloc; the minimum required distance is 100 mm;
- sizes of the distribution element (box) selected for the collection of power (at least 300 mm);
- any brackets and their assembly;
- accessibility to the screws for the installation of the brackets and the closing of the junctions;
- any material required for the actual installation in order to compensate for wall imperfections

In case of rising mains installation, if the system does not require fire barriers, the bracket supporting the bracket can be directly secured to the wall. Otherwise, allow for a spacing support between the bracket and the wall, to ensure that the back of the busbar remains at a distance of 100 mm from the wall, therefore ensuring enough space for the positioning of the partitions.

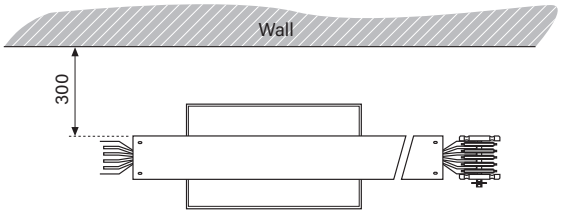
Minimum distance of the wall / ceiling elements

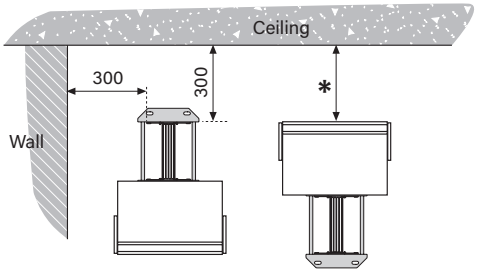




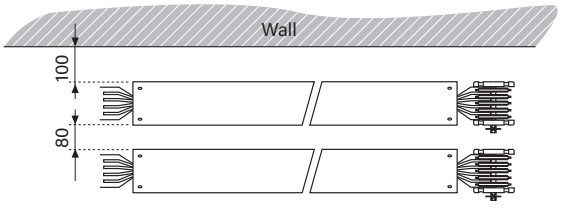


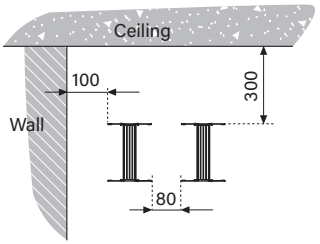
When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected



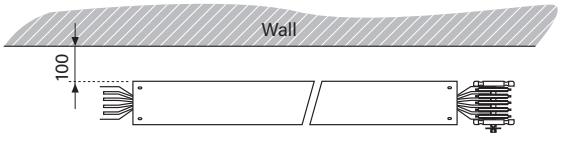


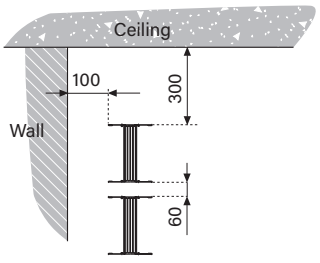
*** When there is a tap-off box installed above the busbar, check the overall dimension of the open cover of the tap-off unit used in the specific section**





Minimum installation distance when there are several adjacent lines

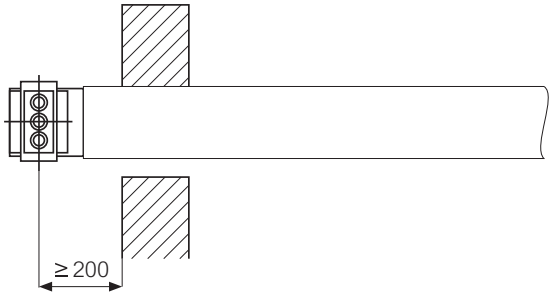


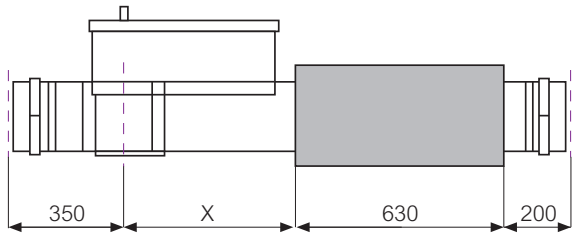


Minimum installation distance when there are several overlapped lines

MECHANICAL DESIGN PRECAUTIONS

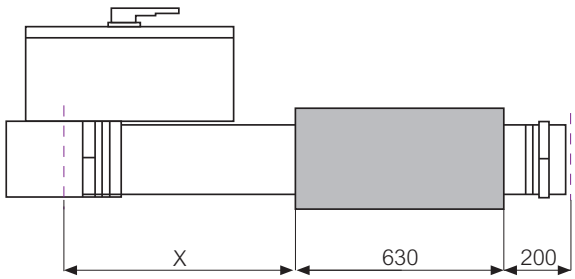
The minimum distance from the junction to the point the busbar crosses the wall or other structure must be at least 200 mm, to ensure the junction of the junctions. In case plug-in boxes and fire barriers are required on the same element the minimum distance between the box and the partition must be taken into account, at the same time allowing for the necessary free space in the junction area and the minimum distance between the distribution outlet and the start of the element. By taking all these variables into account, it is possible to obtain the minimum size of the element in order be able to fit the partition and the plug-in box. The tables that follow summarise the minimum sizes





Refered to Aluminium

PLUG-IN TAP OF BOXES (X MINIMUM SIZE)		
Type	**Rating (A)**	**X (mm)**
1	63 – 160	520
2	250 – 630	720
3	125 – 400	620



Refered to Aluminium

PLUG-IN BOXES ON THE JUNCTION		
Type	**Rating (A)**	**X (mm)**
-	125 – 400	700
-	630	820
-	800 – 1250	1120

Connection to the board

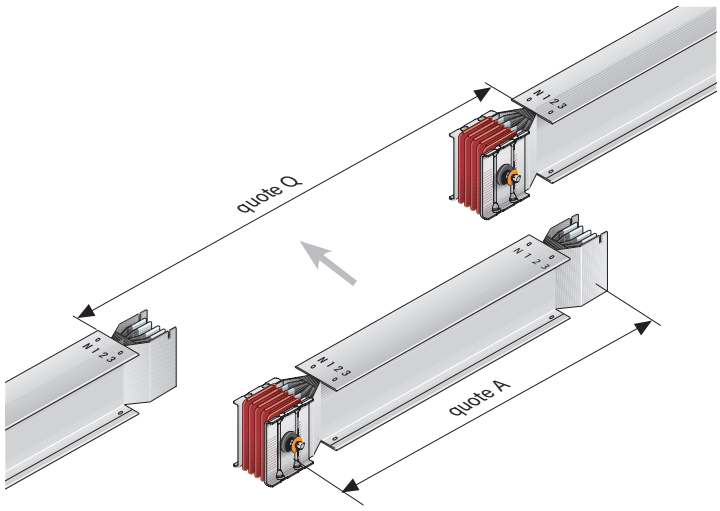
As a rule, the manufacturer of the board is responsible for connecting the connection element and the distribution busbars inside the board. On request Legrand may develop and supply the connections, subject to all necessary details being available.
All types of connections must be agreed and checked with the board manufacturer.

Short circuit withstand

The short circuit withstand of the connection elements depends on the connection of the busbars inside the distribution board.
The declaration of short circuit withstand for the system busbars may only be supplied by the board manufacturer. When using Starline boards and Starline busbar trunking system it will be possible to obtain a short circuit certification.

MEASUREMENT OF SPECIAL ELEMENT LENGTHS

Measurement of straight elements

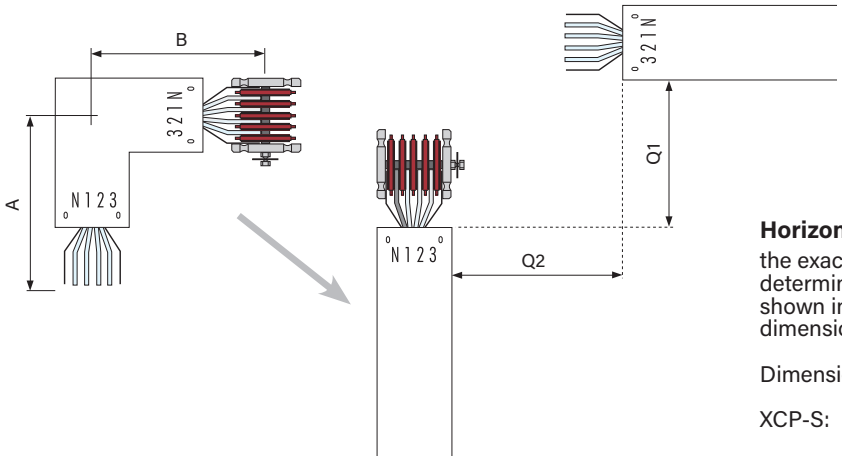


The exact length of the piece to be ordered can be determined by measuring the distance between the elements (as shown in the picture) and then subtracting 270 mm from the dimension that has been taken.

A (Length of element) = Q - 270 mm

Example: Dimension measured Q = 2500 mm
Order a element (2500 - 270) = 2230 mm (quote A)

Measurement of the size for the ordering of a special path element



Horizontal elbow

the exact length of the piece to be ordered can be determined by measuring the dimensions Q1 and Q2 (as shown in the picture) and then subtracting from each dimension taken the values indicated below.

Dimension of the element to order:

XCP-S: **A** = Q1 - 75 mm
B = Q2 - 75 mm

XCP-HP: **A** = Q1 - 72.5 mm
B = Q2 - 72.5 mm

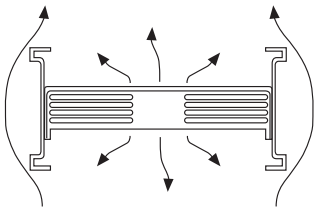
INSULATION TECHNOLOGY

Superior moisture-free insulation technology

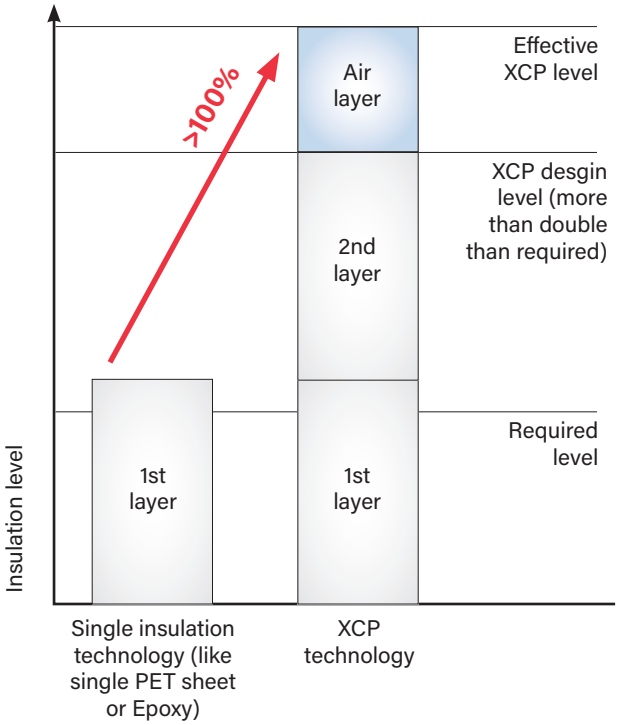
The busbars of the XCP series are insulated by wrapping PET film. To get superior quality and safety, conductor bars are wrapped with two sheets, and each of them is enough to ensure the complete dielectric level required. Therefore, the second sheet has the function to double insulate so to ensure the safety of the bar also in the remote case of failure of the first sheet.
The PET films used to insulate the bars are non-hygroscopic and therefore their dielectric performance are independent of air humidity.

XCP construction follow a sandwich logic. In this way free air circulation is not possible inside the case. Thanks to this geometry, penetration of humidity and dust is prevented (IP55 or IP65 on request), whichever is the spatial orientation of busbar elements. In any case, an energized bar has a temperature higher in comparison to the surrounding atmosphere, and this prevents any possibility of condensation of eventual moisture an event that can only happen on colder surfaces.
So, thanks to the double insulating layer technology together with the sandwich construction, XCP range is fully protected from any problem that can occur from humidity.

Totally Enclosed Housing



PET is non-hygroscopic and therefore preserves its performance whatever is the moisture entity.
What could be affected by its own dielectric performance is the thin layer of air that is inevitably present between the conductive bars and the PET film.
In the XCP design these air layers serve to provide an additional insulation level. Consequently, the total isolation level provided by the XCP range is even higher than that provided by the double PET sheet.



*PET = polyethylene terephthalate
the most useful insulation material for the electric and electronics industry, PET it's used for example in the windings of transformers, to insulate the rotor and stators of electric motors

NOTES

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